

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Susy Tsang-Foster Examiner #: 76063 Date: 3/28/03
 Art Unit: 1745 Phone Number 305-0588 Serial Number: 09/854918
 Mail Box and Bldg/Room Location: CP3 8A09 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

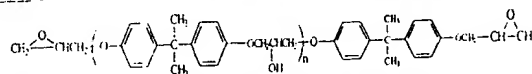
Title of Invention: Lithium battery
 Inventors (please provide full names): Hyung-gon Noh

Earliest Priority Filing Date: 5/15/2000

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please, ^{first} search for an electrolyte gel solution comprising a crosslinked product of (i) a prepolymer for forming an epoxy resin, (ii) an amine, (iii) a lithium salt and (iv) an organic solvent (see claim 1)

Next search for the prepolymer having the following structure (see claim 2) where n is an integer from 2 through 100.



Please also search for an amine represented by the following formula in the electrolyte gel solution as shown in attached claim 3. The electrolyte gel can contain this amine and not the epoxy in claim 2. (for the epoxy and amine)

Both ~~start~~ formulas do not have to be in the same result but it would be useful as well if they were as disclosed in the applicant's ~~spec~~ specification but is not claimed presently but may be claimed later.

STAFF USE ONLY

Searcher: Koroma BM

Searcher Phone #: 305 3542

Searcher Location: EIC/1700

Date Searcher Picked Up: 4/2/03

Date Completed: 4/3/03

Searcher Prep & Review Time: 30 min

Clerical Prep Time: 1.30 min

Online Time: 1.30 min

Type of Search

NA Sequence (#) _____

AA Sequence (#) _____

Structure (#) ✓ 1

Bibliographic ✓

Litigation _____

Fulltext _____

Patent Family _____

Other _____

Vendors and cost where applicable

STN ✓

Dialog _____

Questel/Orbit _____

Dr.Link _____

Lexis/Nexis _____

Sequence Systems _____

WWW/Internet _____

Other (specify) _____

09/854,918

=> file reg

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STRUCTURE FILE UPDATES: 2 APR 2003 HIGHEST RN 501410-52-2
DICTIONARY FILE UPDATES: 2 APR 2003 HIGHEST RN 501410-52-2

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP
PROPERTIES for more information. See STN Note 27, Searching Properties
in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

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FILE COVERS 1907 - 3 Apr 2003 VOL 138 ISS 14
FILE LAST UPDATED: 2 Apr 2003 (20030402/ED)

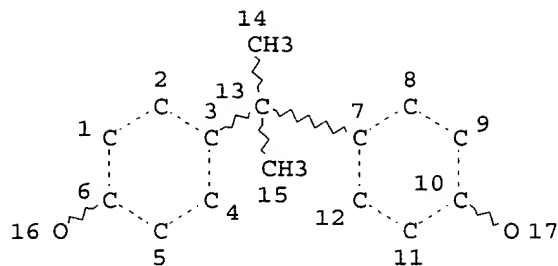
This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> d que l42

L8 40702 SEA FILE=REGISTRY ABB=ON PLU=ON EP/PCT
L12 1 SEA FILE=REGISTRY ABB=ON PLU=ON 90-72-2/RN
L13 1052 SEA FILE=CAPLUS ABB=ON PLU=ON L12

KOROMA EIC1700

L28 STR



NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RSPEC I
 NUMBER OF NODES IS 17

STEREO ATTRIBUTES: NONE

L30 59847 SEA FILE=REGISTRY SSS FUL L28
 L31 21994 SEA FILE=REGISTRY ABB=ON PLU=ON L30 AND L8
 L32 49610 SEA FILE=CAPLUS ABB=ON PLU=ON L31
 L38 259 SEA FILE=CAPLUS ABB=ON PLU=ON (L13 OR L32) AND (LITHIUM OR LI)
 L39 421 SEA FILE=CAPLUS ABB=ON PLU=ON L32 AND L13
 L40 1 SEA FILE=CAPLUS ABB=ON PLU=ON L39 AND (LITHIUM OR LI)
 L41 10 SEA FILE=CAPLUS ABB=ON PLU=ON L38 AND ELECTROLYTE# (5A) (BATTER ? OR CELL)
 L42 11 SEA FILE=CAPLUS ABB=ON PLU=ON L40 OR L41

=> d ibib abs hitstr ind total l42

L42 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2002:736519 CAPLUS
 DOCUMENT NUMBER: 137:271787
 TITLE: Polymer electrolyte gels and their preparation
 INVENTOR(S): Tanaka, Koji
 PATENT ASSIGNEE(S): Toyo Boseki Kabushiki Kaisha, Japan
 SOURCE: PCT Int. Appl., 23 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002075748	A1	20020926	WO 2002-JP2335	20020313
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,				

KOROMA EIC1700

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL,
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

JP 2002279826 A2 20020927 JP 2001-78908 20010319

PRIORITY APPLN. INFO.: JP 2001-78908 A 20010319

AB A polymer electrolyte gel comprises: a crosslinked polymer formed through the ring-opening and crosslinking of a polymer having .gtoreq.2 epoxy groups in a mol. using a supporting electrolyte as a catalyst, the supporting electrolyte and an org. solvent. A method is provided for prepg. the polymer electrolyte gel. In the case of a Li secondary cell or the like using a liq. electrolyte such as an org. solvent, it is difficult to prep. a satisfactorily light-wt. cell, since the sealing of the electrolyte or the like is required for preventing the leakage of a liq. A polymer electrolyte gel was developed for overcoming the above defect through solidification of an electrolyte. However, the gelation by heating combined using a catalyst results in the adverse effect on the cond. of an ion due to impurities derived from the residual catalyst in the resulting polymer electrolyte gel. The gelation by irradiation of a light needs the lamination of the resulting gel with an electrode, which leads to the redn. of the cond. of an ion due to the interfacial resistance between electrolyte and electrode layers. The polymer electrolyte gel is free from the problems assocd. with above conventional polymer electrolyte gels, and thus exhibits enhanced ion cond.

IT 25068-38-6D, Bisphenol-A-epichlorohydrin copolymer, glycidyl-terminated
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(prepn. of polymer electrolyte gels using support electrolytes)

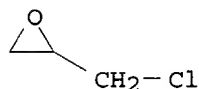
RN 25068-38-6 CAPLUS

CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane (9CI) (CA INDEX NAME)

CM .1

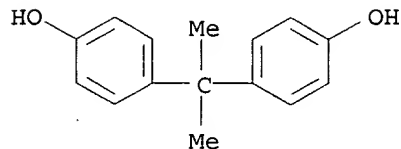
CRN 106-89-8

CMF C3 H5 Cl O



CM 2

CRN 80-05-7
CMF C15 H16 O2

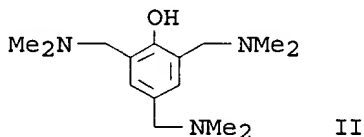
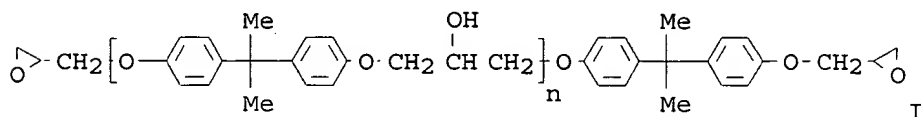


- IC ICM H01B001-06
- ICS C08G059-68
- CC 76-10 (Electric Phenomena)
- Section cross-reference(s): 35, 37, 52, 72
- ST polymer electrolyte gel crosslinking catalyst; gelation polymer electrolyte ion cond
- IT Catalysts
- Solidification
 - (gelation catalysts in prepn. of polymer electrolyte gels using support electrolytes)
- IT Crosslinking
 - (of epoxy groups in prepn. of polymer electrolyte gels using support electrolytes)
- IT Ionic conductivity
 - (of polymer electrolyte gels and their prepn. using support electrolytes)
- IT Electrolytes
- Hydrogels
 - (polymer electrolyte gels and their prepn. using support electrolytes)
- IT Polymerization
 - (prepn. of polymer electrolyte gels using support electrolytes)
- IT Polyoxyalkylenes, reactions
- RL: RCT (Reactant); RACT (Reactant or reagent)
- (prepn. of polymer electrolyte gels using support electrolytes)
- IT 24650-42-8, Benzil dimethyl ketal
- RL: CAT (Catalyst use); USES (Uses)
- (polymn. catalysts in prepn. of polymer electrolyte gels using support electrolytes)
- IT 21324-40-3, Lithium hexafluorophosphate (LiPF6) 33454-82-9, Lithium trifluoromethanesulfonate (LiSO3CF3)
- RL: CAT (Catalyst use); USES (Uses)
- (polymn. catalysts in prepn. of polymer electrolyte gels using support electrolytes contg.)
- IT 462113-10-6P, Acrylonitrile-acetic acid-glycidyl methacrylate copolymer
- 462113-11-7P, Acrylonitrile-stearyl methacrylate-glycidyl methacrylate copolymer
- RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PYP (Physical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
- (prepn. of polymer electrolyte gels using support electrolytes)

IT 25068-38-6D, Bisphenol-A-epichlorohydrin copolymer,
glycidyl-terminated
RL: PEP (Physical, engineering or chemical process); PYP (Physical
process); TEM (Technical or engineered material use); PROC (Process); USES
(Uses)
(prepn. of polymer electrolyte gels using support electrolytes)
IT 25322-68-3, Polyethylene glycol
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of polymer electrolyte gels using support electrolytes)
IT 14283-07-9
RL: NUU (Other use, unclassified); USES (Uses)
(prepn. of polymer electrolyte gels using support electrolytes contg.)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L42 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:933913 CAPLUS
DOCUMENT NUMBER: 136:72283
TITLE: Gel electrolyte and lithium
battery using the electrolyte
INVENTOR(S): Roh, Hyung Shin
PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001357883	A2	20011226	JP 2001-117406	20010416
CN 1324123	A	20011128	CN 2001-117958	20010429
US 2002015893	A1	20020207	US 2001-854918	20010515
PRIORITY APPLN. INFO.: GI			KR 2000-25767 A	20000515



AB The electrolyte contains a Li salt, an org. solvent, and an amine crosslinked epoxy resin prepolymer. The prepolymer is preferably I, and the amine is II.

IT 25068-38-6

RL: MOA (Modifier or additive use); USES (Uses)

(gel electrolytes contg. amine crosslinked epoxy resin prepolymers for secondary lithium batteries)

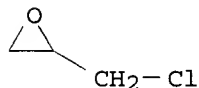
RN 25068-38-6 CAPLUS

CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 106-89-8

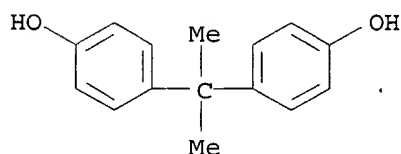
CMF C3 H5 Cl O



CM 2

CRN 80-05-7

CMF C15 H16 O2



IC H01M010-40; C08G059-50; C08K003-00; C08K005-36; C08L063-00; H01M002-02; H01M002-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery gel electrolyte amine crosslinked epoxy prepolymer

IT Epoxy resins, uses

RL: MOA (Modifier or additive use); USES (Uses)

(amine crosslinked; gel electrolytes contg. amine crosslinked epoxy resin prepolymers for secondary lithium batteries)

IT Battery electrolytes

(gel electrolytes contg. amine crosslinked epoxy resin prepolymers for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 872-36-6, Vinylene carbonate 21324-40-3, Lithium hexafluorophosphate

KOROMA EIC1700

RL: DEV (Device component use); USES (Uses)
(gel electrolytes contg. amine crosslinked epoxy resin prepolymers for
secondary **lithium** batteries)

IT 25068-38-6

RL: MOA (Modifier or additive use); USES (Uses)
(gel electrolytes contg. amine crosslinked epoxy resin prepolymers for
secondary **lithium** batteries)

L42 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:451291 CAPLUS

DOCUMENT NUMBER: 135:63758

TITLE: Polymer electrolyte elements, manufacture of the
elements and rolls of the elements, the polymer
electrolyte element rolls, and manufacture of
batteries

INVENTOR(S): Amanokura, Hitoshi; Sonobe, Hiroyuki; Uehara, Hideaki;
Saito, Masayasu

PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001167638	A2	20010622	JP 1999-348915	19991208
PRIORITY APPLN. INFO.:			JP 1999-348915	19991208

AB The electrolyte elements have a dried reaction layer of a reactive resin
on a support, and are prepd. by applying the resin on the support and
drying when necessary. Preferably, the reactive resin contains a resin
having wt. av. mol. wt. 1000-3,000,000, a ethylenic unsatd.
photopolymerizable component, and a photopolymer. initiator. The polymer
electrolyte element rolls are prepd. by rolling the elements. The
batteries are prepd. by laminating the polymer **electrolyte**
element, with **battery** electrodes with the reaction layer in
compact with the cathode or anode.

IT 345663-85-6P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(comps. and manuf. of polymer **electrolyte** components for
secondary **lithium** batteries)

RN 345663-85-6 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-
ethanediyl) ester, polymer with Epikote 152,
.alpha.-(1-oxo-2-propenyl)-.omega.-[(1-oxo-2-propenyl)oxy]poly[oxy(methyl-
1,2-ethanediyl)] and 2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 84778-06-3

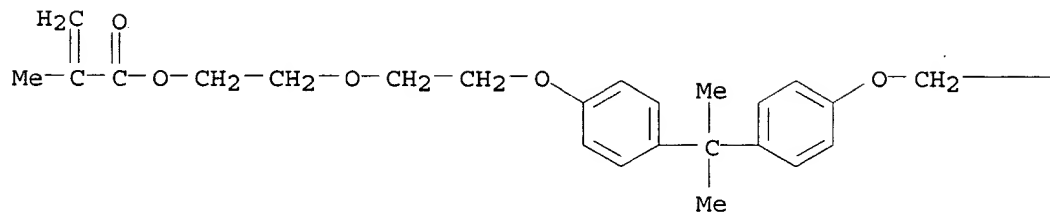
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

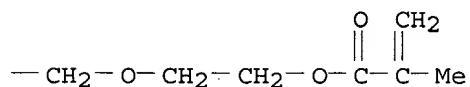
CM 2

CRN 56744-60-6
CMF C31 H40 O8

PAGE 1-A

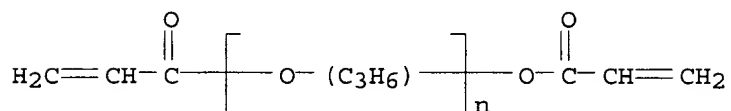


PAGE 1-B



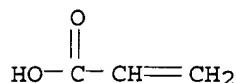
CM 3

CRN 52496-08-9
CMF (C3 H6 O)_n C6 H6 O3
CCI IDS, PMS



CM 4

CRN 79-10-7
CMF C3 H4 O2



IC ICM H01B005-14
ICS C08J007-04; H01M010-40; C09D201-00; H01B001-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery polymer electrolyte element manuf**
IT **Battery electrolytes**
(compsn. and manuf. of polymer **electrolyte** components for
secondary **lithium batteries**)
IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(supports for polymer **electrolyte** components for secondary
lithium batteries)
IT 84-66-2, Dep 84-74-2, Dbp 1344-28-1, Alumina, uses 7631-86-9,
aerosil 50, uses
RL: DEV (Device component use); USES (Uses)
(compsn. and manuf. of polymer **electrolyte** components for
secondary **lithium batteries**)
IT 345663-84-5P 345663-85-6P 345663-86-7P 345663-87-8P
345663-88-9P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(compsn. and manuf. of polymer **electrolyte** components for
secondary **lithium batteries**)
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7791-03-9,
Lithium perchlorate 14283-07-9, **Lithium fluoroborate**
21324-40-3, **Lithium hexafluorophosphate** 25038-59-9,
Poly(ethylene terephthalate), uses
RL: DEV (Device component use); USES (Uses)
(supports for polymer **electrolyte** components for secondary
lithium batteries)

L42 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:117327 CAPLUS

DOCUMENT NUMBER: 134:186945

TITLE: Solid polymer electrolytes, their manufacture, and
electrochemical devices therefrom

INVENTOR(S): Sonobe, Hiroyuki; Uehara, Hideaki; Nakazawa, Satoshi;
Suzuki, Kenji; Nishimura, Noboru; Okumura, Takafumi

PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan; Hitachi, Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND DATE

APPLICATION NO. DATE

KOROMA EIC1700

JP 2001043731	A2	20010216	JP 1999-215470	19990729
PRIORITY APPLN. INFO.:			JP 1999-215470	19990729

AB The electrolytes comprise polyamides having polyoxyalkylene monoamine side chains, alkali metal salts, and nonaq. electrolyte solns. The above stated polyamides are obtained by reaction of (A) polyamide intermediates, formed from (a) diisocyanates or diamines and (b) dicarboxylic acids or tricarboxylic acid (anhydrides), with (B) epoxy resins and (C) polyoxyalkylene monoamines. Manuf. of the electrolytes by prepn. of polyamides having polyoxyalkylene monoamine side chains, followed by their impregnation with nonaq. electrolyte solns. contg. alkali metal salts is also claimed. Also claimed are polymer electrolytes having ion cond. .gtoreq.4.0 .times. 10-4 S/cm and electrochem. devices comprising of the claimed electrolytes. Use of such **electrolytes** in secondary **batteries** was evaluated.

IT **184687-85-2DP**, Adipic acid-bisphenol A-4,4'-diphenylmethane diisocyanate-dodecanedioic acid-epichlorohydrin-sebacic acid copolymer, reaction products with polyoxyalkylene monoamine, **lithium** complexes

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

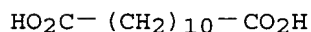
RN 184687-85-2 CAPLUS

CN Dodecanedioic acid, polymer with (chloromethyl)oxirane, decanedioic acid, hexanedioic acid, 1,1'-methylenebis[4-isocyanatobenzene] and 4,4'-(1-methylethylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 693-23-2

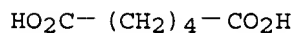
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CM 2

CRN 124-04-9

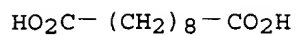
CMF C6 H10 O4



CM 3

CRN 111-20-6

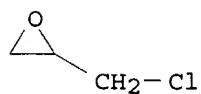
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CM 4

CRN 106-89-8

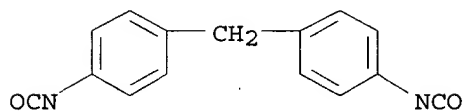
CMF C3 H5 Cl O



CM 5

CRN 101-68-8

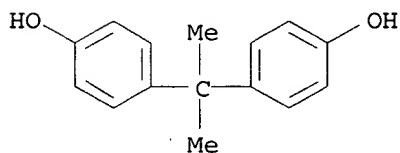
CMF C15 H10 N2 O2



CM 6

CRN 80-05-7

CMF C15 H16 O2



IC ICM H01B001-06

ICS C08G059-14; H01B001-12; H01M006-18; H01M010-40; C09D163-00;
H01L031-04

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 38, 52

ST polyoxyalkylene polyamide graft **lithium** complex electrolyte;
secondary **battery** polyoxyalkylene polyamide **electrolyte**

IT Polyoxyalkylenes, uses

KOROMA EIC1700

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (epoxy-polyamide-, graft; manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

IT Polyamides, uses

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (epoxy-polyoxyalkylene-, graft; manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

IT Polymer electrolytes

(manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

IT Polyoxyalkylenes, uses

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyamide-, graft, alkali metal complexes; manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

IT Epoxy resins, uses

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyamide-polyoxyalkylene-, graft; manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

IT Polyamides, uses

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyoxyalkylene-, graft, alkali metal complexes; manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

IT 7791-03-9, **Lithium** perchlorate 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 90076-65-6, **Lithium** bis(trifluoromethanesulfonyl)imide

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(complexes with polyoxyalkylene-graft polyamides; manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

IT 83713-01-3DP, Jeffamine M 1000, reaction product with epoxy-contg.

polyamides, **lithium** complexes 184687-85-2DP, Adipic acid-bisphenol A-4,4'-diphenylmethane diisocyanate-dodecanedioic acid-epichlorohydrin-sebacic acid copolymer, reaction products with polyoxyalkylene monoamine, **lithium** complexes

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (manuf. of polyoxyalkylene-graft polyamides impregnated with alkali metal salts as solid electrolytes for electrochem. devices)

L42 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:865385 CAPLUS

KOROMA EIC1700

DOCUMENT NUMBER: 134:44479
 TITLE: Acrylic resins for nonaqueous-solvent binder compositions, electrodes, and secondary batteries and manufacture of electrodes
 INVENTOR(S): Ito, Toshihiko; Tanaka, Masaru; Hirayama, Takao; Nishimura, Noboru
 PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan; Hitachi, Ltd.
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000344838	A2	20001212	JP 1999-154043	19990601

PRIORITY APPLN. INFO.: JP 1999-154043 19990601

AB The title acrylic resins comprise (A) epoxy group-contg. (meth)acrylate and (B) nitrile group-contg. (meth)acrylate and have glass transition temp. -30 to 25.degree.. The title binder compns. comprise the acrylic resins dissolved or dispersed in nonaq. solvents. Optionally, the compns. comprise epoxy resins and hardening accelerators. The electrodes are manufd. by mixing the binder compns. with active mass, coating them on supports, and then removing nonaq. solvents. Preferably, the active mass is Li_xMnyO_2 ($x = 0.2-2.5$; $y = 0.8-1.25$). Resulting electrodes are also claimed. Secondary batteries equipped with anodes and/or cathodes manufd. by above method are also claimed. The acrylic resins have good adhesion, bendability, and **electrolyte** resistance and resulting **batteries** show long cycle life, high vol. energy d., and safety.

IT 25068-38-6, Epikote 828
 RL: DEV (Device component use); USES (Uses)
 (binders contg.; epoxy- and nitrile-contg. acrylic resins for nonaq.-solvent binder compns. in electrodes of secondary batteries)

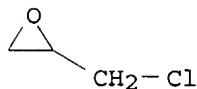
RN 25068-38-6 CAPLUS

CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane (9CI) (CA INDEX NAME)

CM 1

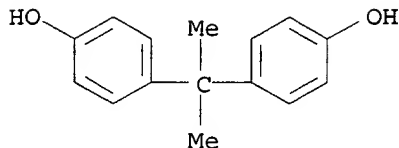
CRN 106-89-8

CMF C3 H5 Cl O



CM 2

CRN 80-05-7
CMF C15 H16 O2



- IC ICM C08F220-32
ICS C08F220-42; C08K003-22; C08L033-14; C08L033-18; C08L063-00;
H01M004-02; H01M004-04; H01M004-58; H01M004-62; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
- ST acrylic epoxy resin binder electrode manuf lithium battery
safety
- IT Epoxy resins, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(acrylic; epoxy- and nitrile-contg. acrylic resins for nonaq.-solvent
binder compns. in electrodes of secondary batteries)
- IT Epoxy resins, uses
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(binders contg.; epoxy- and nitrile-contg. acrylic resins for
nonaq.-solvent binder compns. in electrodes of secondary batteries)
- IT Battery anodes
Battery cathodes
Battery electrodes
Binders
Safety
(epoxy- and nitrile-contg. acrylic resins for nonaq.-solvent binder
compns. in electrodes of secondary batteries)
- IT Secondary batteries
(lithium; epoxy- and nitrile-contg. acrylic resins for
nonaq.-solvent binder compns. in electrodes of secondary batteries)
- IT Epoxy resins, uses
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(phenolic, novolak, binders contg.; epoxy- and nitrile-contg. acrylic
resins for nonaq.-solvent binder compns. in electrodes of secondary
batteries)
- IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(anode; epoxy- and nitrile-contg. acrylic resins for nonaq.-solvent
binder compns. in electrodes of secondary batteries)
- IT 25068-38-6, Epikote 828 183748-49-4, ESCN 001 206566-37-2,
Plyophen LF 2822
RL: DEV (Device component use); USES (Uses)
(binders contg.; epoxy- and nitrile-contg. acrylic resins for

nonaq.-solvent binder compns. in electrodes of secondary batteries)

IT 39300-70-4, Lithium nickel oxide 52627-24-4, Cobalt lithium oxide 176979-24-1, Lithium manganese oxide (Li1.12Mn1.88O4) 312636-38-7, Lithium manganese oxide (Li0.2-2.5Mn0.8-1.25O2)

RL: DEV (Device component use); USES (Uses)

(cathode; epoxy- and nitrile-contg. acrylic resins for nonaq.-solvent binder compns. in electrodes of secondary batteries)

IT 27274-54-0P, Acrylonitrile-butyl acrylate-glycidyl methacrylate copolymer 29437-34-1P, Acrylonitrile-butyl acrylate-ethyl acrylate copolymer 41259-37-4P, Butyl acrylate-ethyl acrylate-glycidyl methacrylate copolymer 58152-79-7P, Acrylonitrile-butyl acrylate-ethyl acrylate-glycidyl methacrylate copolymer 292145-57-4P, Acrylonitrile-butyl acrylate-2-ethylhexyl acrylate-glycidyl methacrylate copolymer

RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(epoxy- and nitrile-contg. acrylic resins for nonaq.-solvent binder compns. in electrodes of secondary batteries)

IT 461-58-5, Dicyandiamide

RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)

(hardening accelerator; epoxy- and nitrile-contg. acrylic resins for nonaq.-solvent binder compns. in electrodes of secondary batteries)

IT 872-50-4, N-Methyl-2-pyrrolidone, uses

RL: NUU (Other use, unclassified); USES (Uses)

(solvent; epoxy- and nitrile-contg. acrylic resins for nonaq.-solvent binder compns. in electrodes of secondary batteries)

L42 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:685310 CAPLUS

DOCUMENT NUMBER: 129:304544

TITLE: Lithium batteries with inorganic nonaqueous electrolytes

INVENTOR(S): Ooishi, Hiromi; Sakai, Hirotaka

PATENT ASSIGNEE(S): Toshiba Battery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10284038	A2	19981023	JP 1997-88134	19970407
PRIORITY APPLN. INFO.:			JP 1997-88134	19970407

AB The battery comprises Li anode, thionyl chloride as cathode active material and electrolyte, porous C cathode, and glass fiber separator contg. epoxy resin binder. The separator has high strength and also prevents decrease in vol.

IT 25068-38-6, Bisphenol A epoxy resin

RL: DEV (Device component use); USES (Uses)

(amine-crosslinked, separator binder; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

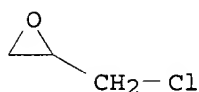
RN 25068-38-6 CAPLUS

CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 106-89-8

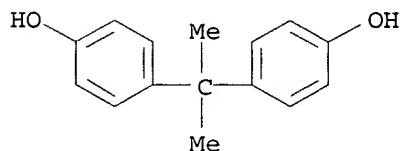
CMF C3 H5 Cl O



CM 2

CRN 80-05-7

CMF C15 H16 O2



IC ICM H01M002-16

ICS H01M006-14

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST glass fiber epoxy binder battery separator; lithium

battery separator thionyl chloride electrolyte

IT Primary battery separators

(Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

IT Carbon black, uses

RL: DEV (Device component use); USES (Uses)

(cathode; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

IT Glass fibers, uses

RL: DEV (Device component use); USES (Uses)

(mats, separator; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

IT Epoxy resins, uses

RL: DEV (Device component use); USES (Uses)

(separator binder; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

IT Glass fibers, uses

RL: DEV (Device component use); USES (Uses)

KOROMA EIC1700

(separator; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

IT 25068-38-6, Bisphenol A epoxy resin
RL: DEV (Device component use); USES (Uses)
(amine-crosslinked, separator binder; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(anode; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

IT 7719-09-7, Thionyl chloride
RL: DEV (Device component use); USES (Uses)
(cathode active material and electrolyte; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(cathode; Li-SOCl₂ batteries with epoxy-bonded glass fiber separators)

L42 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:297472 CAPLUS

DOCUMENT NUMBER: 122:69646

TITLE: High-conductivity epoxy polymer solid electrolyte materials

INVENTOR(S): Yano, Katsumi; Futakuchi, Tomoaki; Terasawa, Takashi; Orito, Shinya; Takeda, Yutaka; Maekawa, Hiroshi; Yamada, Shigeru; Yagi, Shinsuke

PATENT ASSIGNEE(S): Toyama Prefecture, Japan; Kooseru Kk; Hokuriku Elect Ind; Kyoritsu Denko Kk; Kitamura Machinery Co Ltd; Nissan Chemical Ind Ltd

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06131911	A2	19940513	JP 1992-275304	19920918

PRIORITY APPLN. INFO.: JP 1992-275304 19920918

AB Title electrolyte material to be gelated comprises (1) glycidyl epoxy monomers, (2) a polyol-condensate gelating agent, (3) an amine curing agent, (4) a tetracyanoethylene cond.-enhancing agent, and (5) an ion-conductive Li compd. such as LiClO₄ or LiBF₄. The electrode materials are useful for elec. conductive polymer film electrodes for polymer batteries.

IT 25068-38-6
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(for elec.-conductive epoxy solid electrolyte electrode film)

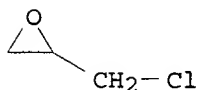
RN 25068-38-6 CAPLUS

CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane
(9CI) (CA INDEX NAME)

CM 1

CRN 106-89-8

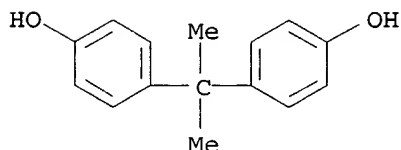
CMF C3 H5 Cl O



CM 2

CRN 80-05-7

CMF C15 H16 O2



IC ICM H01B001-06

ICS C01D015-00; C08G059-18; C08L063-00; H01M006-18; H01M010-40

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 38, 72

ST epoxy polymer solid electrolyte material electrode; polymer battery
electrode epoxy film

IT Electrodes

Electrolytes

(epoxy polymer film for polymer battery)

IT Epoxy resins, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PROC (Process); USES (Uses)

(glycidyl; for elec.-conductive epoxy solid electrolyte electrode film)

IT Electric conductors

(tetracyanoethylene for cond.-enhancing agent in epoxy polymer solid
electrolyte materials)

IT Gelation

(agents, polyol condensate; for elec.-conductive epoxy solid
electrolyte electrode film)

IT 80-08-0 92-87-5, 4,4'-Diaminodiphenyl 108-45-2, 1,3-Benzenediamine,
uses 112-24-3 19900-65-3

RL: MOA (Modifier or additive use); USES (Uses)

(curing agent; for elec.-conductive epoxy solid electrolyte electrode
film)

KOROMA EIC1700

IT 670-54-2, Tetracyanoethylene, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (elec. cond. enhancing agent; for elec.-conductive epoxy solid electrolyte electrode film)

IT 2095-03-6 25068-38-6 159335-65-6
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (for elec.-conductive epoxy solid electrolyte electrode film)

IT 25322-68-3 159736-80-8
 RL: MOA (Modifier or additive use); USES (Uses)
 (gelating agent; for elec.-conductive epoxy solid electrolyte electrode film)

IT 7791-03-9, Lithium perchlorate (LiClO₄) 14283-07-9
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (ion-conductive material; for elec.-conductive epoxy solid electrolyte electrode film)

L42 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:303314 CAPLUS
 DOCUMENT NUMBER: 120:303314
 TITLE: Nonaqueous-electrolyte secondary battery
 INVENTOR(S): Sasaki, Takashi; Makuchi, Keizo; Takeda, Kazunari; Ido, Shuichi
 PATENT ASSIGNEE(S): Japan Atomic Energy Res Inst, Japan; Yuasa Battery Co Ltd
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05326019	A2	19931210	JP 1992-127291	19920520
PRIORITY APPLN. INFO.:			JP 1992-127291	19920520

AB A secondary battery comprises: (a) a composite cathode contg. an active mass and a polymer having a polyether structure and contg. a substance having ion cond.; (b) an anode; and (c) an electrolyte from a polymer having a polyether structure and contg. a substance having ion cond., where the polymer in the cathode and/or electrolyte is formed by irradiating with ionizing radiation. The anode can also contain an active mass and a polymer having a polyether structure and contg. a substance having ion cond. The battery has high safety and long-term reliability.

IT 155380-53-3
 RL: USES (Uses)
 (cathode contg. lithium tetrafluoroborate-filled, in lithium battery)

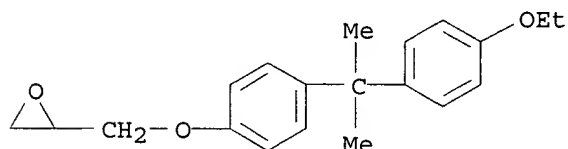
RN 155380-53-3 CAPLUS
 CN Hexanedioic acid, bis(7-oxabicyclo[4.1.0]hept-3-ylmethyl) ester, polymer

with dihydro-2(3H)-furanone and [[4-[1-(4-ethoxyphenyl)-1-methylethyl]phenoxy]methyl]oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 155380-52-2

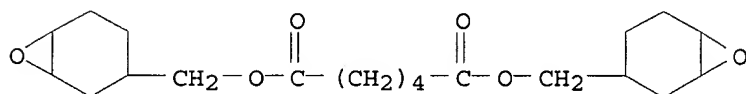
CMF C20 H24 O3



CM 2

CRN 3130-19-6

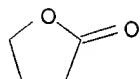
CMF C20 H30 O6



CM 3

CRN 96-48-0

CMF C4 H6 O2



IC ICM H01M010-40

ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte secondary battery safety; polyether electrode lithium battery

IT Safety
(of nonaq.-electrolyte secondary battery)

IT Electron beam
(polymer formation with, in prepn. of electrodes and electrolyte of lithium battery)

IT Anodes
Cathodes

KOROMA EIC1700

(battery, polymer having polyether structure and contg. ion-conductive compd. in, for **lithium** battery)

IT Polyethers, uses
 RL: USES (Uses)
 (epoxy-polyester-, cathode contg. **lithium** tetrafluoroborate-filled, in **lithium** battery)

IT Polyesters, uses
 RL: USES (Uses)
 (epoxy-polyether-, cathode contg. **lithium** tetrafluoroborate-filled, in **lithium** battery)

IT Radiation
 (ionizing, polymer formation with, in prepn. of electrodes and **electrolyte** of **lithium** battery)

IT Epoxy resins, uses
 RL: USES (Uses)
 (polyester-polyether-, cathode contg. **lithium** tetrafluoroborate-filled, in **lithium** battery)

IT 155380-51-1 155380-53-3
 RL: USES (Uses)
 (cathode contg. **lithium** tetrafluoroborate-filled, in **lithium** battery)

IT 14283-07-9, **Lithium** tetrafluoroborate
 RL: USES (Uses)
 (polyether filled with, in cathode of **lithium** battery)

L42 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:110013 CAPLUS

DOCUMENT NUMBER: 116:110013

TITLE: Ionic conductivity of epoxy network/polyethylene glycol-**lithium** perchlorate complex IPN system

AUTHOR(S): Peng, Xinsheng; Song, Yongxian; Qi, Yuchen; Wu, Shuyun; Li, Lixia; Chen, Donglin

CORPORATE SOURCE: Changchun Inst. Appl. Chem., Acad. Sin., Changchun, Peop. Rep. China

SOURCE: Chinese Journal of Polymer Science (1990), 8(4), 342-6
 CODEN: CJPSEG; ISSN: 0256-7679

DOCUMENT TYPE: Journal

LANGUAGE: English

AB To prep. a polymeric solid electrolyte with both high ionic cond. at ambient temp. and adequate mech. strength, an ionic conducting IPN (interpenetrating networks) composed of bisphenol A epoxy resin/polyethylene glycol contg. LiClO₄ was synthesized. The dependence of cond. was investigated as a function of salt content, compn., and temp. A max. of cond. appeared when EO/Li = 25, where EO denotes the -CH₂CH₂O) - unit in polyethylene glycol. The temp. dependence of cond. followed Vogel-Tammann-Fulcher equation, using that the motion of ionic carriers resulted from the segmental motion of the polymer. When glycerol epoxy resin was used instead of bisphenol A epoxy, the ambient temp. (25) cond. could somewhat further be raised 3 .times. 10⁻⁵ S/cm.

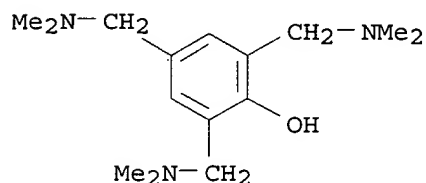
IT 90-72-2, 2,4,6-Tris(N,N-Dimethylamino)methyl phenol

RL: USES (Uses)

(in prepn. of epoxy network/polyethylene glycol-lithium perchlorate system)

RN 90-72-2 CAPLUS

CN Phenol, 2,4,6-tris[(dimethylamino)methyl]- (9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 37, 38, 76

ST ionic cond epoxy interpenetrating network; polyethylene glycol interpenetrating network epoxy; lithium perchlorate interpenetrating network epoxy; battery polymer electrolyte interpenetrating network epoxy

IT Electric conductors, polymeric
(epoxy network/polyethylene glycol-lithium perchlorate interpenetrating networks, ionic cond. in)

IT **Battery electrolytes**
(epoxy network/polyethylene glycol-lithium perchlorate system, ionic cond. of)

IT Epoxy resins, properties
RL: PRP (Properties)
(interpenetrating network contg., ionic cond. of)

IT Electric conductivity and conduction
(ionic, of epoxy network/polyethylene glycol-lithium perchlorate interpenetrating networks system)

IT 112-57-2
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent, in prepn. of epoxy network/polyethylene glycol-lithium perchlorate system)

IT 90-72-2, 2,4,6-Tris(N,N-Dimethylamino)methyl phenol
RL: USES (Uses)
(in prepn. of epoxy network/polyethylene glycol-lithium perchlorate system)

IT 7791-03-9, Lithium perchlorate 25322-68-3
RL: USES (Uses)
(interpenetrating network contg. epoxy resins and, ionic cond. of)

IT 56-81-5D, Glycerol, epoxy resin 80-05-7D, epoxy resin
RL: USES (Uses)
(interpenetrating network contg., ionic cond. of)

L42 ANSWER 10 OF 11 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:443123 CAPLUS

DOCUMENT NUMBER: 107:43123

TITLE: Interpenetrating-network polymeric electrolytes

INVENTOR(S): Bauer, Barry J.; Chiang, Chwan Kang; Davis, George T.

PATENT ASSIGNEE(S): United States Dept. of the Navy, USA
 SOURCE: U. S. Pat. Appl., 14 pp.
 CODEN: XAXXAV
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 884143	A0	19861219	US 1986-884143	19860710
US 4654279	A	19870331		

PRIORITY APPLN. INFO.: US 1986-884143 19860710

AB The electrolytes comprise a 2-phase interpenetrating polymer network of a mech. supporting phase of a continuous network of a crosslinked polymer selected from epoxies, polyurethanes, polymethacrylates, polyacrylates, polyacrylonitriles, and polystyrenes; and an ionically conducting phase consisting of a metal salt (LiI, LiBr, LiClO₄, CoClO₄, NaI, KBr, etc.)-complexing liq. polymer selected from poly(ethylene oxide), poly(propylene oxide), and/or poly(ethylene imine). Modulus and elec. cond. vs. epoxy polymer content (20-50 wt.%) relations for mixts. of the polymer and a complex of a low-mol.-wt. poly(ethylene oxide) with 10 mol % LiClO₄ are given, and the prepn. of these mixts. is described.

IT 70548-69-5, DER-332-Jeffamine T-403 copolymer

RL: USES (Uses)

(electrolyte blends contg. lithium perchlorate-poly(ethylene oxide) and, for batteries)

RN 70548-69-5 CAPLUS

CN Oxirane, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis-, polymer with .alpha.-hydro-.omega.-(2-aminomethylethoxy)poly[oxy(methyl-1,2-ethanediyl)] ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1) (9CI) (CA INDEX NAME)

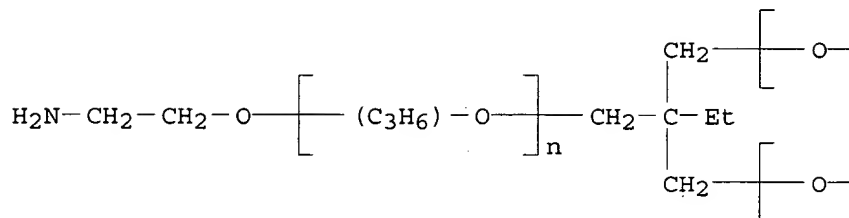
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CRN 39423-51-3

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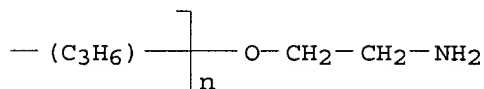
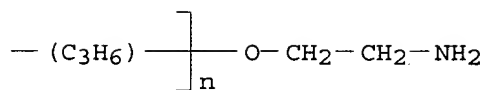
CCI IDS, PMS

PAGE 1-A



3 (D1-Me)

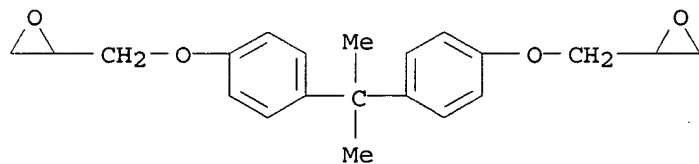
PAGE 1-B



CM 2

CRN 1675-54-3

CMF C21 H24 O4



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76

ST **battery polymer electrolyte**; polyethylene oxide
lithium perchlorate epoxy; cond polymer **battery electrolyte**

IT **Batteries, primary**

Batteries, secondary

(**electrolytes of lithium perchlorate-poly(ethylene oxide)/mech. supporting polymer blends for**)

IT Electric conductivity and conduction

(of **lithium perchlorate-poly(ethylene oxide)/mech. supporting polymer blends, for battery electrolytes**)

KOROMA EIC1700

IT 26950-76-5 70548-69-5, DER-332-Jeffamine T-403 copolymer
 RL: USES (Uses)
 (electrolyte blends contg. lithium perchlorate-poly(ethylene oxide) and, for batteries)

IT 7439-93-2D, Lithium, poly(ethylene oxide) complexes
 25322-68-3D, Poly(ethylene oxide), lithium complexes
 RL: USES (Uses)
 (electrolytes, contg. perchlorate, blends with poly(Me methacrylate) or epoxy resin, for batteries)

L42 ANSWER 11 OF 11 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1975:17623 CAPLUS
 DOCUMENT NUMBER: 82:17623
 TITLE: Analytical investigations employing dynamic mechanical properties
 AUTHOR(S): Cuddihy, Edward F.; Moacanin, Jovan
 CORPORATE SOURCE: Polym. Res. Sect., Jet Propul. Lab., Pasadena, CA, USA
 SOURCE: New Ind. Appl. Advan. Mater. Technol., Nat. SAMPE Symp. Exhib., 19th (1974), Meeting Date 1974, 487-95. SAMPE: Azusa, Calif.
 CODEN: 28PVAM
 DOCUMENT TYPE: Conference
 LANGUAGE: English

AB The effects of amine and acid anhydride crosslinking agents on epoxy resin .beta.-transition intensity were discussed. Dynamic mech. spectra were used to study lithium perchlorate [7791-03-9] crosslinking of urethane rubber-based solid propellants and property changes in implanted silicone rubber poppets in artificial heart valves.

IT 25085-99-8
 RL: USES (Uses)
 (crosslinking agents for, structure of, dynamic mech. properties in relation to)

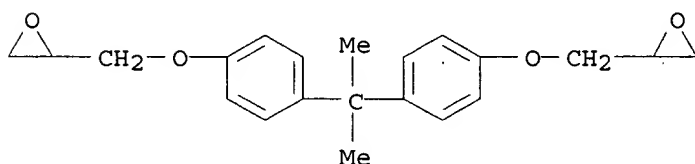
RN 25085-99-8 CAPLUS

CN Oxirane, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1675-54-3

CMF C21 H24 O4

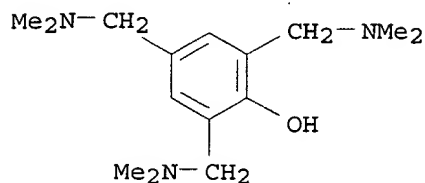


IT 90-72-2
 RL: USES (Uses)
 (epoxy resins crosslinked by, dynamic mech. properties in relation to)

KOROMA EIC1700

RN 90-72-2 CAPLUS

CN Phenol, 2,4,6-tris[(dimethylamino)methyl]- (9CI) (CA INDEX NAME)



CC 36-5 (Plastics Manufacture and Processing)

Section cross-reference(s): 50, 63

ST epoxy resin shear structure; silicone rubber shear structure; urethane rubber shear structure; propellant urethane rubber crosslinking; prosthetic silicone heart valve

IT Epoxy resins

RL: USES (Uses)

(crosslinking agents for, structure of, dynamic mech. properties in relation to)

IT Molecular structure-property relationship

(dynamic mech., of crosslinked plastics)

IT Glass temperature and transition

(of crosslinked plastics, dynamic mech. properties in relation to)

IT Rubber, urethane, uses and miscellaneous

(propellants, crosslinking agents for, structure of, dynamic mech. properties in relation to)

IT Rubber, silicone

(prosthetics, crosslinking agents for, structure of, dynamic mech. properties in relation to)

IT Prosthetic materials and Prosthetics

(silicone rubber, for heart valve implant, dynamic mech. properties of)

IT Crosslinking agents

(structure of, for plastics, dynamic mech. properties in relation to)

IT Propellants

(urethane rubbers for, dynamic mech. properties of)

IT 25085-99-8

RL: USES (Uses)

(crosslinking agents for, structure of, dynamic mech. properties in relation to)

IT 85-42-7 89-32-7 90-72-2 108-45-2, uses and miscellaneous

111-40-0

RL: USES (Uses)

(epoxy resins crosslinked by, dynamic mech. properties in relation to)

IT 7791-03-9

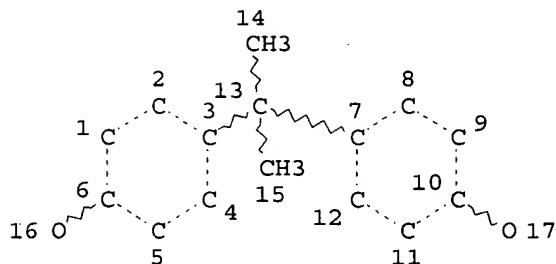
RL: USES (Uses)

(urea-modified urethane rubbers crosslinked by, dynamic mech. properties in relation to)

=> d que 143

KOROMA EIC1700

L8 40702 SEA FILE=REGISTRY ABB=ON PLU=ON EP/PCT
 L12 1 SEA FILE=REGISTRY ABB=ON PLU=ON 90-72-2/RN
 L13 1052 SEA FILE=CAPLUS ABB=ON PLU=ON L12
 L28 STR



NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RSPEC I
 NUMBER OF NODES IS 17

STEREO ATTRIBUTES: NONE

L30 59847 SEA FILE=REGISTRY SSS FUL L28
 L31 21994 SEA FILE=REGISTRY ABB=ON PLU=ON L30 AND L8
 L32 49610 SEA FILE=CAPLUS ABB=ON PLU=ON L31
 L34 1158 SEA FILE=CAPLUS ABB=ON PLU=ON (?EPOX? OR L8 OR L32) AND (L13
 OR ?AMINE? OR ?AMINO?) AND (LI OR LITHIUM)
 L37 41 SEA FILE=CAPLUS ABB=ON PLU=ON L34 AND ELECTROLYTE#(5A) (BATTER
 ? OR CELL)
 L38 259 SEA FILE=CAPLUS ABB=ON PLU=ON (L13 OR L32) AND (LITHIUM OR
 LI)
 L39 421 SEA FILE=CAPLUS ABB=ON PLU=ON L32 AND L13
 L40 1 SEA FILE=CAPLUS ABB=ON PLU=ON L39 AND (LITHIUM OR LI)
 L41 10 SEA FILE=CAPLUS ABB=ON PLU=ON L38 AND ELECTROLYTE#(5A) (BATTER
 ? OR CELL)
 L42 11 SEA FILE=CAPLUS ABB=ON PLU=ON L40 OR L41
 L43 35 SEA FILE=CAPLUS ABB=ON PLU=ON L37 NOT L42

=> d ibib abs hitstr ind total 143

L43 ANSWER 1 OF 35 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2003:240279 CAPLUS
 TITLE: Nonaqueous electrolyte secondary
 battery. [Machine Translation].
 INVENTOR(S): Ishida, Sumito; Watanabe, Shoichiro; Mochida, Isao
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent

KOROMA EIC1700

LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003092147	A2	20030328	JP 2001-324289	20011023

PRIORITY APPLN. INFO.: JP 2001-214435 A 20010713

AB [Machine Translation of Descriptors]. The moisture it is not included and it improves the reliability of the nonaq. **electrolyte** secondary **battery** which includes the org. solvent largely. It reacts with dioxide carbon even under the environment which almost does not possess the moisture pos. electrode 1, cathode in the secondary **battery** which consists of the nonaq. **electrolyte** which includes 2 and the **lithium** salt, it installs the dioxide carbon capture material 11 which locks dioxide carbon inside the elec. battery. The **epoxy** compds., the **amine** compd., CuH (PH3) 2, Na CrH (CO) 5], Ni (PH3) and Ca (OH) 2 etc. supporting in carrier such as carbon material, metal and metallic oxide, you use dioxide carbon capture material 11. The water does not participate in the aforementioned reaction.

IC ICM H01M010-40
 CC 52 (Electrochemical, Radiational, and Thermal Energy Technology)

L43 ANSWER 2 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:963849 CAPLUS
 DOCUMENT NUMBER: 138:42038
 TITLE: Manufacture of nonaqueous secondary battery
 INVENTOR(S): Kano, Koji; Fujiwara, Aiichiro; Kaide, Hideki
 PATENT ASSIGNEE(S): Toshiba Battery Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002367677	A2	20021220	JP 2001-169733	20010605

PRIORITY APPLN. INFO.: JP 2001-169733 20010605

AB The battery is prepd. by impregnating an electrode stack contg. a cathode and an anode, with a reactive compd. dissolved in an org. solvent; removing the solvent to retain the compd. on the stack; impregnating the stack with a nonaq. electrolyte soln., contg. a dissolved crosslinking agent and/or initiating reagent polymerizable with the compd.; gelling the electrolyte soln. by crosslinking or polymn. of the compd. Another battery is prepd. by forming the electrode stack with the reactive compd. in the cathode and anode.

IC ICM H01M010-40
 ICS H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **battery electrolyte** polymer gel manuf
 IT **Polyamines**
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (crosslinking agent; manuf. of secondary **lithium batteries** contg. crosslinked polymer gel **electrolytes**)
 IT Secondary batteries
 (manuf. of secondary **lithium batteries** contg. crosslinked polymer gel **electrolytes**)
 IT 96-48-0 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 14283-07-9, **Lithium** tetrafluoroborate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solns. in manuf. of secondary **lithium batteries** contg. electrodes with polymerizable compds.)
 IT 9003-06-9D, Acryl amide-acrylate copolymer, **epoxy** ring contg.
 RL: DEV (Device component use); USES (Uses)
 (manuf. of secondary **lithium batteries** contg. crosslinked polymer gel **electrolytes**)
 IT 64-17-5, Ethanol, processes 67-56-1, Methanol, processes 105-58-8, Diethyl carbonate
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (solvent in manuf. of secondary **lithium batteries** contg. crosslinked polymer gel **electrolytes**)

L43 ANSWER 3 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:886573 CAPLUS

DOCUMENT NUMBER: 137:372558

TITLE: Cathode containing organosulfur compound for nonaqueous-**electrolyte battery**

INVENTOR(S): Cho, Kim Ho; Nagai, Tatsu; Iizuka, Keiji; Nakai, Toshihiro; Uenae, Keiichiro

PATENT ASSIGNEE(S): Hitachi Maxell Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002334698	A2	20021122	JP 2001-136585	20010507
PRIORITY APPLN. INFO.:			JP 2001-136585	20010507
AB The title cathode contains [1,2]dithiolo[4,3-c]-1,2-dithiole-3,6-dithione. The title battery may be equipped with the cathode and a polymer electrolyte. The nonaq. battery provides high capacity and low capacity decrease after repeated charging-discharging.				
IT 378746-34-0D, AX 1043-Jeffamine XTJ 502-SR-8EG copolymer, lithium complexes, trifluoromethanesulfonate-contg.				
RL: DEV (Device component use); USES (Uses)				

(electrolytes; cathode contg. organosulfur compd. for nonaq.-
electrolyte battery)

RN 378746-34-0 CAPLUS
CN Oxirane, methyl-, polymer with oxirane, bis(2-aminopropyl) ether, polymer
with AX 1043 and .alpha.-(oxiranylmethyl)-.omega.-
(oxiranylmethoxy)poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 378187-25-8

CMF Unspecified

CCI PMS, MAN

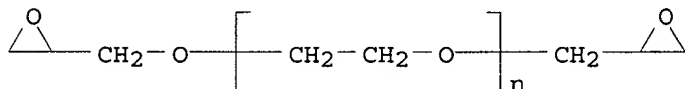
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 26403-72-5

CMF (C2 H4 O)n C6 H10 O3

CCI PMS



CM 3

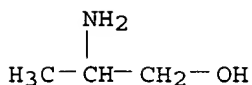
CRN 65605-36-9

CMF C3 H9 N O . 1/2 (C3 H6 O . C2 H4 O)x

CM 4

CRN 6168-72-5

CMF C3 H9 N O



CM 5

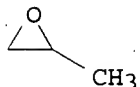
CRN 9003-11-6

CMF (C3 H6 O . C2 H4 O)x

CCI PMS

CM 6

CRN 75-56-9
CMF C3 H6 O



CM 7

CRN 75-21-8
CMF C2 H4 O



- IC ICM H01M004-60
- ICS H01M004-02; H01M004-06; H01M006-18; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST dithiolo dithiole dithione cathode nonaq battery
- IT Battery cathodes
 - Battery electrolytes**
 - Polymer electrolytes
 - (cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)
- IT Polyurethanes, uses
 - RL: DEV (Device component use); USES (Uses)
 - (**epoxy**-polyurea-, **lithium** complexes, trifluoromethanesulfonate-contg., electrolytes; cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)
- IT Polyureas
 - RL: DEV (Device component use); USES (Uses)
 - (**epoxy**-polyurethane-, **lithium** complexes, trifluoromethanesulfonate-contg., electrolytes; cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)
- IT Fluoropolymers, uses
 - RL: DEV (Device component use); USES (Uses)
 - (**lithium** complexes, trifluoromethanesulfonate-contg., electrolytes; cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)
- IT Secondary batteries
 - (**lithium**; cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)
- IT Epoxy resins, uses
 - RL: DEV (Device component use); USES (Uses)
 - (polyurea-polyurethane-, **lithium** complexes, trifluoromethanesulfonate-contg., electrolytes; cathode contg.

organosulfur compd. for nonaq.-**electrolyte battery**)
 IT 56423-74-6, [1,2]Dithiolo[4,3-c]-1,2-dithiole-3,6-dithione
 RL: DEV (Device component use); USES (Uses)
 (cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)
 IT 67-68-5, Dimethylsulfoxide, uses 143-24-8, Tetraglyme 623-53-0, Ethyl methyl carbonate 646-06-0, 1,3-Dioxolane
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solvent; cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)
 IT 33454-82-9, **Lithium** trifluoromethanesulfonate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)
 IT 9011-17-0D, Propylene hexafluoride-vinylidene fluoride copolymer, **lithium** complexes, trifluoromethanesulfonate-contg.
 378746-34-0D, AX 1043-**Jeffamine** XTJ 502-SR-8EG
 copolymer, **lithium** complexes, trifluoromethanesulfonate-contg.
 RL: DEV (Device component use); USES (Uses)
 (electrolytes; cathode contg. organosulfur compd. for nonaq.-**electrolyte battery**)

L43 ANSWER 4 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:736752 CAPLUS
 DOCUMENT NUMBER: 137:265678
 TITLE: High ionic conductivity gel polymer
electrolyte for rechargeable polymer
batteries
 INVENTOR(S): Park, Chi-Kyun; Zhang, Zhiwei; Sun, Lu Ying; Chai, Chul
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 9 pp., Cont.-in-part of U.S.
 Ser. No. 760,720.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002136959	A1	20020926	US 2001-986459	20011108
US 2002136958	A1	20020926	US 2001-760720	20010117
EP 1225649	A2	20020724	EP 2001-310592	20011219
EP 1225649	A3	20020807		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

CN 1367201	A	20020904	CN 2002-101700	20020117
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PRIORITY APPLN. INFO.: US 2001-760720 A2 20010117
 US 2001-986459 A 20011108

AB Ionic gel polymer **electrolytes** for rechargeable polymer
batteries are disclosed. In preferred forms, a gel polymer

precursor electrolyte is formed by dissolving a gelling agent into org. liq. electrolytes, and then gelling the precursor in situ at elevated temp. after pouring it into a battery case that contains a cathode, an anode and a separator. The gel polymer electrolytes exhibit excellent ionic cond. of up to about 10⁻² S/cm and voltage stability for **lithium** rechargeable batteries. Most preferably, the gel polymer electrolyte is the reaction product of (A) nitrogen-group contg. polymers, copolymers, oligomers or monomers that are capable of reacting with halogen compds. or **epoxy** compds., such as, polymers, copolymers, oligomers or monomers contg. primary, secondary or tertiary **amines**, and (B) halide or **epoxy**-group contg. polymers, copolymers, oligomers or monomers that are capable of reacting with nitrogen-contg. compds., such as polymers, copolymers, oligomers or monomers contg. alkylene halides or halomethyl group substituted arom. units or at least one **epoxy** unit. Esp. preferred (A) materials include pyridine compds., and most preferably vinylpyridines, such as poly(2-vinylpyridine) and copolymers thereof. Esp. preferred compds. useable as material (B) include bis(bromomethyl)benzene, .alpha.,.alpha.'-dibromoxylene, diiodoalkanes, 3,4-**epoxycyclohexylmethyl-3',4'-epoxycyclohexanecarboxylate**, butadiene diepoxide, and butanediol diglycidyl ether.

IC ICM H01M010-40

ICS H01M010-04

NCL 429303000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **battery** rechargeable gel polymer **electrolyte**

IT Alkyl iodides

RL: DEV (Device component use); USES (Uses)

(C.g.toreq.2; high ionic cond. gel polymer **electrolyte** for rechargeable polymer **batteries**)

IT Polymers, uses

RL: DEV (Device component use); USES (Uses)

(aryl halides; high ionic cond. gel polymer **electrolyte** for rechargeable polymer **batteries**)

IT **Battery electrolytes**

Gels

Ionic conductivity

Polymer electrolytes

Secondary **batteries**

(high ionic cond. gel polymer **electrolyte** for rechargeable polymer **batteries**)

IT Aryl halides

Carbonaceous materials (technological products)

RL: DEV (Device component use); USES (Uses)

(high ionic cond. gel polymer **electrolyte** for rechargeable polymer **batteries**)

IT **Amines**, uses

RL: MOA (Modifier or additive use); USES (Uses)

(primary; high ionic cond. gel polymer **electrolyte** for rechargeable polymer **batteries**)

IT **Amines**, uses

RL: MOA (Modifier or additive use); USES (Uses)
(secondary; high ionic cond. gel polymer **electrolyte** for
rechargeable polymer **batteries**)

IT **Amines**, uses

RL: MOA (Modifier or additive use); USES (Uses)
(tertiary; high ionic cond. gel polymer **electrolyte** for
rechargeable polymer **batteries**)

IT 71-43-2D, Benzene, halomethyl derivs., polymers 91-20-3D, Naphthalene,
halomethyl derivs., polymers 92-52-4D, Biphenyl, halomethyl derivs.,
polymers 96-49-1, Ethylene carbonate 100-42-5D, Styrene, halomethyl
derivs., polymers 105-58-8, Diethyl carbonate 110-86-1, Pyridine, uses
285-67-6, Cyclopentene oxide 286-20-4, Cyclohexene oxide 286-75-9,
5,10-Dioxatricyclo[7.1.0.0^{4,6}]decane 288-47-1, Thiazole 289-06-5,
Thiadiazole 289-80-5, Pyridazine 289-95-2, Pyrimidine 290-37-9,
Pyrazine 616-38-6, Dimethyl carbonate 799-34-8 1436-34-6, 1,2-
Epoxyhexane 1464-53-5, Butadiene **diepoxide**
2224-15-9, Ethylene glycol diglycidyl ether 2425-79-8 7791-03-9,
Lithium perchlorate 12654-97-6, Triazine 14283-07-9,
Lithium tetrafluoroborate 21324-40-3, **Lithium**
hexafluorophosphate 24980-54-9, Styrene-2-vinylpyridine copolymer
25014-15-7, Poly(2-vinylpyridine) 26142-30-3, Polypropylene glycol
diglycidyl ether 29935-35-1, **Lithium** hexafluoroarsenate
33454-82-9, **Lithium** triflate 37306-44-8, Triazole
38622-14-9, Bis(bromomethyl)benzene 90076-65-6

RL: DEV (Device component use); USES (Uses)
(high ionic cond. gel polymer **electrolyte** for rechargeable
polymer **batteries**)

IT 2386-87-0, 3,4-**EPOXYCYCLOHEXYLMETHYL**-3',4'-
epoxycyclohexanecarboxylate

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(high ionic cond. gel polymer **electrolyte** for rechargeable
polymer **batteries**)

IT 626-15-3, ..alpha.,.alpha.'-Dibromo-m-xylene 627-31-6

RL: MOA (Modifier or additive use); USES (Uses)
(high ionic cond. gel polymer **electrolyte** for rechargeable
polymer **batteries**)

L43 ANSWER 5 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:552264 CAPLUS

DOCUMENT NUMBER: 137:127520

TITLE: Crosslinked ionomer-gelled nonaqueous polymer
electrolytes with high ionic conductivity for
rechargeable **lithium** polymer batteries

INVENTOR(S): Park, Chi-Kyun; Zhang, Zhiwei; Sun, Lu Ying; Chai,
Chul

PATENT ASSIGNEE(S): SKC Co., Ltd., S. Korea

SOURCE: Eur. Pat. Appl., 13 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1225649	A2	20020724	EP 2001-310592	20011219
EP 1225649	A3	20020807		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

US 2002136958	A1	20020926	US 2001-760720	20010117
US 2002136959	A1	20020926	US 2001-986459	20011108

PRIORITY APPLN. INFO.:
 US 2001-760720 A 20010117
 US 2001-986459 A 20011108

AB Ionomer-type gelled polymer **electrolytes** for rechargeable polymer-electrode **batteries** are formed by dissolving a gelling agent into org.-liq. electrolytes, pouring the gelling agent (with the org. liq. **electrolyte**) into the **battery** case, and gelling the mixt. in-situ within the battery case at elevated temp. The gel polymer electrolytes exhibit excellent ionic cond. of up to 10⁻² S/cm and have a stable voltage suitable for **lithium** rechargeable batteries contg. **lithium** salt-based org.-liq. electrolytes. The gelled polymer electrolyte is the reaction product of (1) an **amine** -group-contg. compd. (e.g., polymers copolymers, or **amines**), and (2) a halide-group or **epoxy**-group-contg. compd. (e.g., an alkylene halide, a halomethyl group, or an **epoxy** monomer). Preferred compds. for component (1) include pyridines and vinylpyridines, such as 2-vinylpyridine copolymers; preferred compds. for component (2) include bis(bromomethyl)benzenes, .alpha.,.alpha.'-dibromoxylenes, diiodialkanes, (3,4-**epoxycyclohexyl**)methyl-3',4'-**epoxycyclohexanecarboxylate**, butadiene diepoxide, and butandediol diglycidyl ether.

IT **443890-85-5P 443890-87-7P**
 RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (gelling agent; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable **lithium** polymer batteries)

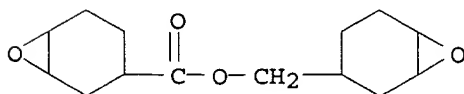
RN 443890-85-5 CAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 7-oxabicyclo[4.1.0]hept-3-ylmethyl ester, polymer with 1,3-bis(bromomethyl)benzene, ethenylbenzene and 2-ethenylpyridine (9CI) (CA INDEX NAME)

CM 1

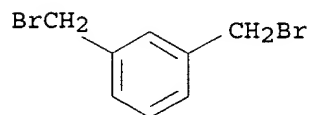
CRN 2386-87-0

CMF C14 H20 O4



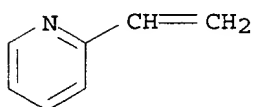
CM 2

CRN 626-15-3
CMF C8 H8 Br2



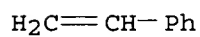
CM 3

CRN 100-69-6
CMF C7 H7 N



CM 4

CRN 100-42-5
CMF C8 H8

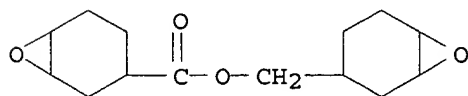


RN 443890-87-7 CAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 7-oxabicyclo[4.1.0]hept-3-ylmethyl ester, polymer with ethenylbenzene and 2-ethenylpyridine (9CI)
(CA INDEX NAME)

CM 1

CRN 2386-87-0
CMF C14 H20 O4

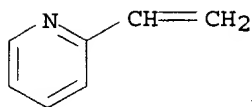


KOROMA EIC1700

CM 2

CRN 100-69-6

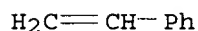
CMF C7 H7 N



CM 3

CRN 100-42-5

CMF C8 H8



IC ICM H01M006-18

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST gelled polymer **electrolyte** rechargeable **lithium battery**; pyridinium ionomer **epoxy** resin gelation **electrolyte** rechargeable **battery**; vinylpyridine ionomer **epoxy** resin gelation **battery electrolyte**; iodopropane vinylpyridine ionomer gelation **battery electrolyte**

IT **Epoxy** resins, uses

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(ionomers, **battery electrolytes** contg.; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable **lithium** polymer batteries)

IT Gelation agents

(ionomers; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable **lithium** polymer batteries)

IT **Battery electrolytes**

(nonaq.; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable **lithium** polymer batteries)

IT Carbon black, uses

Fluoropolymers, uses

RL: DEV (Device component use); USES (Uses)

(polymer electrode contg.; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable **lithium** polymer batteries)

IT Ionomers

KOROMA EIC1700

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (pyridinium-epoxy and pyridinium-iodoxylylene copolymers, battery electrolytes contg.; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable lithium polymer batteries)

IT 443890-84-4P 443890-85-5P 443890-86-6P 443890-87-7P

RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (gelling agent; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable lithium polymer batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium trifluoromethanesulfonate 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide

RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte contg.; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable lithium polymer batteries)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂) 24937-79-9, Polyvinylidene difluoride

RL: DEV (Device component use); USES (Uses)
 (polymer electrode contg.; crosslinked ionomer-gelled nonaq. polymer electrolytes with high ionic cond. for rechargeable lithium polymer batteries)

L43 ANSWER 6 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:122598 CAPLUS

DOCUMENT NUMBER: 136:186628

TITLE: Ion conductivity gel electrolyte and electrochemical apparatus

INVENTOR(S): Amanokura, Hitoshi; Sonobe, Hiroyuki; Uehara, Hideaki; Mashimo, Kiyotaka; Suzuki, Kenji

PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002050399	A2	20020215	JP 2000-235773	20000803
PRIORITY APPLN. INFO.:			JP 2000-235773	20000803

AB The electrolyte contains a resin, an electrolyte soln., and a photopolymn. initiator, which is an amino group contg. benzophenone deriv.
 The electrochem. app. is preferably a secondary Li battery.

IC ICM H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST secondary lithium battery gel polymer
 electrolyte compn; amino benzophenone photoinitiator
 lithium battery gel electrolyte
 IT Epoxy resins, uses
 RL: DEV (Device component use); USES (Uses)
 (copolymers with acrylic acid; ion conductive gel electrolytes contg.
 aminobenzophenone deriv. photoinitiators for secondary
 lithium batteries)
 IT Battery electrolytes
 (ion conductive gel electrolytes contg.
 aminobenzophenone deriv. photoinitiators for secondary
 lithium batteries)
 IT 90-93-7, 4,4'-Bis(diethylamino)benzophenone 96-48-0,
 .gamma.-Butyrolactone 96-49-1, Ethylene carbonate 119-61-9, Kayacure
 bp, uses 616-38-6, Dimethyl carbonate 14283-07-9, Lithium
 fluoroborate
 RL: DEV (Device component use); USES (Uses)
 (aminobenzophenone deriv. photoinitiators in ion conductive
 gel electrolytes for secondary lithium
 batteries)
 IT 79-10-7D, Acrylic acid, copolymers with epoxy resins
 15625-89-5, NK Ester A-TMPT 25805-16-7, 1,4-Butanediol-methylene
 bis(4-phenylisocyanate) copolymer 27340-76-7, Acrylonitrile-butyl
 acrylate-methyl methacrylate copolymer 52496-08-9, Apg 400 75577-70-7,
 Sr 454 118229-52-0, 1,3-Bis(3,4-dicarboxyphenyl)-1,1,3,3-
 tetramethyldisiloxane dianhydride-4,4'-diaminodiphenyl
 ether-4,4'-oxydiphthalic acid dianhydride copolymer
 RL: DEV (Device component use); USES (Uses)
 (ion conductive gel electrolytes contg. aminobenzophenone
 deriv. photoinitiators for secondary lithium batteries)

L43 ANSWER 7 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:104918 CAPLUS

DOCUMENT NUMBER: 136:153905

TITLE: Ion conductive gel electrolyte and secondary
 lithium battery using the
 electrolyte

INVENTOR(S): Amanokura, Hitoshi; Sonobe, Hiroyuki; Uehara, Hideaki;
 Mashita, Kiyotaka; Suzuki, Kenji

PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002042869	A2	20020208	JP 2000-226293	20000727

PRIORITY APPLN. INFO.:

JP 2000-226293

20000727

AB The gel electrolyte contains a resin, an electrolyte soln., and an alk. compd. neutralizing the acidity of the electrolyte. The alk. compd. is preferably an **amine**, the resin has a w. av. mol. wt. 10,000-3,000,000, and the electrolyte soln. contains a **Li** salt selected from LiClO₄, LiBF₄, LiPF₆, and (CF₃SO₂)₂NLi dissolved in a solvent selected from ethylene carbonate, propylene carbonate, .gamma.-butyrolactone, Me₂CO₃, and Et₂CO₃.

IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **lithium battery gel electrolyte**
compn; **lithium salt polymer gel electrolyte**
amine battery

IT **Battery electrolytes**

(compns. of ion conductive polymer gel electrolytes contg.
amine neutralizing agents for secondary **lithium**
batteries)

IT **Amines**, uses

RL: MOA (Modifier or additive use); USES (Uses)

(compns. of ion conductive polymer gel electrolytes contg.
amine neutralizing agents for secondary **lithium**
batteries)

IT **Epoxy resins**, uses

RL: DEV (Device component use); USES (Uses)

(reaction products with acrylic acid; compns. of ion conductive polymer
gel electrolytes contg. **amine** neutralizing agents for
secondary **lithium** batteries)

IT 79-10-7D, Acrylic acid, reaction products with **epoxy** resin,
reaction products with A-TMPT and APG 400 96-49-1, Ethylene carbonate
616-38-6, Dimethyl carbonate 21324-40-3, **Lithium**
hexafluorophosphate 395089-90-4 395089-91-5

RL: DEV (Device component use); USES (Uses)

(compns. of ion conductive polymer gel electrolytes contg.
amine neutralizing agents for secondary **lithium**
batteries)

IT 100-46-9, **Benzylamine**, uses 108-18-9, **Diisopropylamine**
121-44-8, **Triethylamine**, uses 10287-53-3, Ethyl p-
dimethylaminobenzoate

RL: MOA (Modifier or additive use); USES (Uses)

(compns. of ion conductive polymer gel electrolytes contg.
amine neutralizing agents for secondary **lithium**
batteries)

L43 ANSWER 8 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:771032 CAPLUS

DOCUMENT NUMBER: 135:320499

TITLE: Separators for electrochemical cells

INVENTOR(S): Carlson, Steven A.; Ying, Qicong; Deng, Zhongyi;
Skotheim, Terje A.

PATENT ASSIGNEE(S): Moltech Corporation, USA

SOURCE: U.S., 18 pp., Cont.-in-part of U.S. 6,153,337.

CODEN: USXXAM

KOROMA EIC1700

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6306545	B1	20011023	US 1998-215112	19981217
US 6153337	A	20001128	US 1997-995089	19971219
US 2002092155	A1	20020718	US 2001-40651	20011022

PRIORITY APPLN. INFO.:
 US 1997-995089 A2 19971219
 US 1998-215112 A1 19981217

AB This invention pertains to separators for electrochem. cells which comprise a microporous pseudo-boehmite layer; electrolyte elements comprising such separators; elec. current producing cells comprising such separators; and methods of making such separators, **electrolyte** elements and **cells**.

IC ICM H01M002-16
 ICS C04B035-10

NCL 429247000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 72

ST separator electrochem cell; battery separator microporous pseudoboehmite layer

IT Polyoxyalkylenes, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (alkylated, binder; separators for electrochem. cells)

IT **Aminoplasts**
Epoxides
 Gelatins, uses
 Polyoxyalkylenes, uses
 Polyurethanes, uses
 Polyvinyl butyrals
 RL: MOA (Modifier or additive use); USES (Uses)
 (binder; separators for electrochem. cells)

IT Carbon fibers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nanofibers; separators for electrochem. cells)

IT Acrylic polymers, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (polyamide-, binder; separators for electrochem. cells)

IT Vulcanization
 (radiation, sensitizers for; separators for electrochem. cells)

IT Conducting polymers
 Crosslinking agents
 Crosslinking catalysts
 Dispersing agents
 Pigments, nonbiological
 Plasticizers
 Porosity
 Secondary batteries
 Secondary battery separators

Surfactants

(separators for electrochem. cells)

IT Polysulfides

Transition metal chalcogenides

RL: DEV (Device component use); USES (Uses)

(separators for electrochem. cells)

IT Alcohols, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(separators for electrochem. cells)

IT Carbon black, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(separators for electrochem. cells)

IT Glycols, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(separators for electrochem. cells)

IT Polyesters, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(separators for electrochem. cells)

IT 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses
1332-29-2, Tin oxide 1344-28-1, Alumina, uses 9002-89-5 9002-98-6
9003-08-1, Formaldehyde-melamine copolymer 9003-19-4,
Polyvinyl ether 9003-39-8, Polyvinyl pyrrolidone 9004-39-1, Cellulose
acetate propionate 9004-62-0, Hydroxyethyl cellulose 9005-25-8,
Starch, uses 9011-05-6, Formaldehyde-urea copolymer 13463-67-7,
Titanium oxide, uses 25322-68-3 25322-68-3D, alkylated

RL: MOA (Modifier or additive use); USES (Uses)

(binder; separators for electrochem. cells)

IT 7631-86-9, Colloidal silica, uses

RL: MOA (Modifier or additive use); USES (Uses)

(colloidal, binder; separators for electrochem. cells)

IT 7440-44-0D, Carbon, intercalation comods., uses

RL: DEV (Device component use); USES (Uses)

(lithium; separators for electrochem. cells)

IT 111-96-6, Diethylene glycol dimethyl ether 646-06-0, 1,3-Dioxolane

1318-23-6, Pseudoboehmite 7439-93-2, Lithium, uses

7704-34-9, Sulfur, uses 12798-95-7 33454-82-9, Lithium

triflate 39448-96-9, Graphite lithium 53680-59-4

368432-87-5, E 25 Setela

RL: DEV (Device component use); USES (Uses)

(separators for electrochem. cells)

IT 64401-02-1, Photomer 4028 140207-95-0, Photomer 6210

RL: MOA (Modifier or additive use); USES (Uses)

(separators for electrochem. cells)

IT 57-55-6, Propylene glycol, uses 64-17-5, Ethanol, uses 67-56-1,

Methanol, uses 67-63-0, Isopropanol, uses 71-23-8, 1-Propanol, uses

71-36-3, 1-Butanol, uses 78-92-2, 2-Butanol 107-21-1, Ethylene glycol,

uses 109-86-4, 2-Methoxyethanol 110-80-5, 2-Ethoxyethanol 111-76-2,

2-Butoxyethanol 7732-18-5, Water, uses 25038-59-9, Melinex 516, uses

211431-21-9, Escure kto 221629-51-2, CN984

RL: TEM (Technical or engineered material use); USES (Uses)

(separators for electrochem. cells)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L43 ANSWER 9 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:713253 CAPLUS

DOCUMENT NUMBER: 135:259841

TITLE: Mixed conducting membrane for carbon dioxide separation and partial oxidation reactions

INVENTOR(S): Sammells, Anthony F.

PATENT ASSIGNEE(S): Eltron Research, Inc., USA

SOURCE: PCT Int. Appl., 47 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001070626	A1	20010927	WO 2000-US42620	20001206
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1254073	A1	20021106	EP 2000-992653	20001206
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

PRIORITY APPLN. INFO.:

US 1999-169500P P 19991207

US 2000-724131 A 20001128

WO 2000-US42620 W 20001206

AB Gas-impermeable membrane contg. a molten salt electrolyte in an electron-conducting matrix provides for mixed ion and electron conduction across the membrane. The membrane mediates transport of a selected ion for gas sepn. and/or catalytic reactions at the membrane surfaces, particularly for mediation of oxide ion, such as carbonate, for carbon dioxide sepn. or for partial oxidn. reaction. The membrane is incorporated to catalytic membrane reactor having a redn. zone and an oxidn. zone and used for gas sepn. and full or partial oxidn. reactions. Catalytic membrane reactor can incorporate catalyst layers on the membrane surfaces and/or three-dimensional catalysts, e.g., packed-bed catalysts, in the oxidn. zone or the redn. zone of the reactor. The invention also relates to methods of gas sepn. and methods for generating products employing the membranes and catalytic membrane reactors of this invention.

IC ICM C01B003-26

ICS C01B031-20

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49, 72

ST carbon dioxide sepn mixed conducting membrane; partial oxidn mixed

conducting membrane; fuel cell molten salt electrolyte
ion transport

IT Reactors

(membrane; mixed conducting membrane for carbon dioxide sepn. and
partial oxidn. reactions)

IT Fuel cell electrolytes

Membranes, nonbiological

Oxidation catalysts

Reduction catalysts

Separation

Steam reforming catalysts

Synthesis gas manufacturing

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Alcohols, formation (nonpreparative)

Aldehydes, formation (nonpreparative)

Amines, formation (nonpreparative)

Epoxides

Ketones, formation (nonpreparative)

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Alkenes, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Alkynes

RL: TEM (Technical or engineered material use); USES (Uses)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Aromatic compounds

RL: TEM (Technical or engineered material use); USES (Uses)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Carbonates, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Halides

RL: TEM (Technical or engineered material use); USES (Uses)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Hydrocarbons, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Naphtha

RL: TEM (Technical or engineered material use); USES (Uses)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn.
reactions)

IT Nitrates, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT Phosphates, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT Sulfates, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT Transition metals, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT Fuel cells
 (molten carbonate; mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT Oxidation
 (partial; mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT Nickel alloy, base
 RL: CAT (Catalyst use); USES (Uses)
 (mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses
 RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
 (mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT 14798-03-9, Ammonium, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT 124-38-9, Carbon dioxide, processes
 RL: REM (Removal or disposal); PROC (Process)
 (mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT 74-82-8, Methane, uses 463-79-6D, Carbonic acid, alkali metal and alk. earth compds., uses 554-13-2, lithium carbonate 584-08-7, Potassium carbonate 1313-99-1, Nickel oxide nio, uses 7440-02-0, Nickel, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

IT 7440-44-0, Carbon, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (vitreous; mixed conducting membrane for carbon dioxide sepn. and partial oxidn. reactions)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L43 ANSWER 10 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:635715 CAPLUS

DOCUMENT NUMBER: 135:183330

TITLE: Releasing films for casting solid electrolytes

INVENTOR(S): Morimoto, Yukiaki

PATENT ASSIGNEE(S): Teijin Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001236992	A2	20010831	JP 2000-44127	20000222
PRIORITY APPLN. INFO.:			JP 2000-44127	20000222

AB The releasing films have a substrate of a polyester, prepd. by Ge compd. catalytic condensation, and a silicone releasing layer on the surface of the substrate; where the silicone layer has a central line av. roughness height .ltoreq.0.4 .mu.m, and when an adhesive tape is attached to the releasing layer and then peeled, the amt. of Si transferred to the adhesive surface is .ltoreq.5 at.%, detd. by electron spectroscopy. The releasing film may have a YSiX3 (X = alkoxy,group, Y = **epoxy**, **amino**, vinyl, methacryl, mercapto, or alkoxy groups) crosslinked primer layer between the substrate and the silicone layer. The solid **electrolytes** are useful for secondary Li **batteries**.

IC ICM H01M010-40
ICS B32B027-00; B32B027-36; H01B013-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **lithium battery solid electrolyte**
casting releasing film; polyester releasing film silicone coating
electrolyte casting

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(germanium catalytic condensation polyester substrates for releasing
films in casting **battery electrolytes**)

IT **Battery electrolytes**
(polyester substrates for silicone coated releasing films for casting
secondary **lithium battery electrolytes**)

IT 2530-83-8, 3-Glycidoxypropyltrimethoxysilane
RL: CAT (Catalyst use); USES (Uses)
(crosslinked primer layers in silicone coated polyester releasing films
for casting **battery electrolytes**)

IT 157858-56-5, Germanium oxide
RL: CAT (Catalyst use); USES (Uses)
(germanium catalytic condensation polyester substrates for releasing
films in casting **battery electrolytes**)

IT 25038-59-9, Poly(ethylene terephthalate), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(germanium catalytic condensation polyester substrates for releasing

films in casting **battery electrolytes**)

IT 32032-92-1, Dimethyl siloxane, methyl terminated 59942-04-0, Dimethyl siloxane, vinyl terminated
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polyester substrates for silicone coated releasing films for casting **battery electrolytes**)

L43 ANSWER 11 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:117402 CAPLUS

DOCUMENT NUMBER: 134:165675

TITLE: Manufacture of polymer solid electrolytes, the electrolytes, and electrochemical devices

INVENTOR(S): Nakazawa, Satoshi; Uehara, Hideaki; Sonobe, Hiroyuki; Suzuki, Kenji

PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001043896	A2	20010216	JP 1999-215473	19990729
PRIORITY APPLN. INFO.:			JP 1999-215473	19990729

AB The polymer electrolytes, for electrochem. devices, esp. secondary Li batteries, are prepd. by dissolving an alkali metal salt in a polyamide resin, having polyoxyalkylene **monoamine** group on side chain; where the resin is obtained by reacting a diisocyanate or **diamine** with a dicarboxylic acid or tricarboxylic acid or its anhydride to form an intermediate polyamide, and reacting the intermediate polyamide with an **epoxy** resin and a polyoxyalkylene **monoamine**. The alkali metal salt is selected from LiClO₄, LiBF₄, LiPF₆, and (CF₃SO₂)₂NLi.

IC ICM H01M010-40

ICS C08L063-00; H01B001-06; H01B013-00; C08G059-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **lithium battery electrolyte**
 polyamide **epoxy** resin

IT **Battery electrolytes**

(compns. and manuf. of polyamide-**epoxy** resin copolymer **electrolytes** for secondary **lithium batteries**)

IT **Epoxy** resins, uses

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(copolymers with polyamides; compns. and manuf. of polyamide-**epoxy** resin copolymer **electrolytes** for secondary **lithium batteries**)

IT 7791-03-9, **Lithium** perchlorate 14283-07-9, **Lithium** fluoroborate 21324-40-3, **Lithium** hexafluorophosphate

90076-65-6

RL: DEV (Device component use); USES (Uses)
(compns. and manuf. of polyamide-epoxy resin copolymer
electrolytes for secondary lithium batteries
)

IT 325726-85-ODP, copolymers with bisphenol A epoxy resins
325726-86-IDP, copolymers with bisphenol A epoxy resins
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(compns. and manuf. of polyamide-epoxy resin copolymer
electrolytes for secondary lithium batteries
)

L43 ANSWER 12 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:822810 CAPLUS
DOCUMENT NUMBER: 133:364428
TITLE: Polyelectrolytic gel
INVENTOR(S): Maruyama, Kunio; Tanaka, Koji; Hamamoto, Shiro
PATENT ASSIGNEE(S): Toyo Boseki Kabushiki Kaisha, Japan
SOURCE: Eur. Pat. Appl., 29 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1054465	A1	20001122	EP 2000-110245	20000519
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000331533	A2	20001130	JP 1999-140597	19990520
US 6420072	B1	20020716	US 2000-572179	20000517
PRIORITY APPLN. INFO.:			JP 1999-140597	A 19990520

AB This invention includes a polyelectrolytic gel comprising a polymer component and a nonaq. solvent, characterized in that the polymer component is a crosslinked polymer having nitrogen-contg. cationic functional group or a mixt. of a non-crosslinked polymer having nitrogen-contg. cationic functional group and a crosslinked polymer free of nitrogen-contg. cationic functional group, the polymer component being swollen with the nonaq. solvent contg. an electrolyte dissolved therein. The electrolytic gel of the invention is excellent in heat resistance and durability and also in electrocond., esp. ion cond.

IT 307952-66-5
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(polyelectrolytic gel)

RN 307952-66-5 CAPLUS

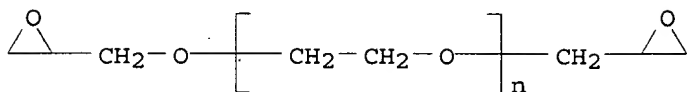
CN 2-Propenoic acid, 2-methyl-, 2-(dimethylamino)ethyl ester, polymer with .alpha.-(oxiranylmethyl)-.omega.-(oxiranylmethoxy)poly(oxy-1,2-ethanediyl) and 2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 26403-72-5

CMF (C2 H4 O)n C6 H10 O3

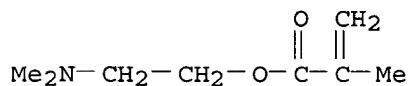
CCI PMS



CM 2

CRN 2867-47-2

CMF C8 H15 N O2



CM 3

CRN 107-13-1

CMF C3 H3 N



IC ICM H01M006-18

ICS C08F220-44; H01G009-02; G01N027-407; H01B001-12

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST crosslinked cationic polymer polyelectrolyte gel; nonaq solvent
polyelectrolyte gel

IT **Battery electrolytes**

Ionic conductors

Polyelectrolytes

(polyelectrolytic gel)

IT 307952-71-2

RL: DEV (Device component use); USES (Uses)

(polyelectrolytic gel)

IT 556-65-0, **Lithium** thiocyanate 7550-35-8, **Lithium**

bromide 7791-03-9, **Lithium** perchlorate 10377-51-2,

Lithium iodide 14283-07-9, **Lithium** tetrafluoroborate

21324-40-3, **Lithium** hexafluorophosphate 29935-35-1,

Lithium hexafluoroarsenate 33454-82-9, **Lithium**

KOROMA EIC1700

triflate 62852-65-7, Decaborate(2-), decachloro-, dilithium
132404-42-3

RL: MOA (Modifier or additive use); USES (Uses)
(polyelectrolytic gel)

IT 307952-51-8, Acrylonitrile-(Dimethylamino)ethyl
methacrylate-1,9-nonanediol dimethacrylate copolymer 307952-52-9
307952-53-0, Acrylonitrile-dimethylaminoethyl
acrylate-1,9-nonanediol dimethacrylate copolymer 307952-54-1,
Acrylonitrile-Methacrylic acid, 2-(dimethylamino)ethyl
ester-1,9-nonanediol dimethacrylate-vinyl acetate copolymer 307952-55-2,
Acrylonitrile-Methacrylic acid, 2-(dimethylamino)ethyl
ester-2-Propenoic acid, methyl ester-1,9-nonanediol dimethacrylate
copolymer 307952-56-3, Acrylonitrile-Methacrylic acid, 2-(
dimethylamino)ethyl ester-methacrylic acid-1,9-nonanediol
dimethacrylate copolymer 307952-57-4, Acrylonitrile-(
Dimethylamino)ethyl methacrylate-polyethylene glycol
dimethacrylate copolymer 307952-58-5, Acrylonitrile-aminoethyl
methacrylate-polyethylene glycol dimethacrylate copolymer 307952-59-6,
Acrylonitrile-N-monoethylaminoethyl methacrylate-polyethylene
glycol dimethacrylate copolymer 307952-60-9, Acrylonitrile-N,N-
diethylaminoethyl methacrylate-polyethylene glycol dimethacrylate
copolymer 307952-61-0, Acrylonitrile-N,N,N-trimethylaminoethyl
methacrylate hydroxide-polyethylene glycol dimethacrylate copolymer
307952-62-1, Acrylonitrile-N-aminoethyl methallylamine
-polyethylene glycol dimethacrylate copolymer 307952-64-3 307952-65-4,
Acrylonitrile-N,N-diethylaminoethyl methacrylate
nitrate-polyethylene glycol dimethacrylate copolymer 307952-66-5
307952-67-6 307952-68-7 307952-69-8 307952-70-1
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)

(polyelectrolytic gel)

IT 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8,
Diethyl carbonate

RL: NUU (Other use, unclassified); USES (Uses)

(solvent; polyelectrolytic gel)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L43 ANSWER 13 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:804086 CAPLUS

DOCUMENT NUMBER: 133:337759

TITLE: Nonaqueous-electrolyte secondary
batteries with high-rate discharging and long
cycle life

INVENTOR(S): Hara, Kenji; Higashimoto, Koji; Suzuki, Katsunori;
Iguchi, Tomohiro

PATENT ASSIGNEE(S): Shin-Kobe Electric Machinery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000315504	A2	20001114	JP 1999-124026	19990430
PRIORITY APPLN. INFO.:			JP 1999-124026	19990430

AB The title battery using **Li** manganate cathodes contains (1) polydimethylsiloxanes contg. carboxyl group or amide group at the functional group at the end and (2) their crosslinking agents in the anode layer or the cathode layer. The crosslinking agent may contain polyisocyanate compds., **epoxy** resins, **melamine** compds., and/or metal chelating agents. The battery has high-rate discharging and long cycle life.

IC ICM H01M004-62
ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium** battery electrode polydimethylsiloxane; crosslinking agent **lithium** battery electrode

IT Polysiloxanes, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(di-Me, **amino**-terminated; polydimethylsiloxane and crosslinking agent in **Li** manganate cathodes and/or anodes for secondary **Li** battery)

IT Polysiloxanes, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(di-Me, carboxy-terminated; polydimethylsiloxane and crosslinking agent in **Li** manganate cathodes and/or anodes for secondary **Li** battery)

IT Secondary batteries
(**lithium**; polydimethylsiloxane and crosslinking agent in **Li** manganate cathodes and/or anodes for secondary **Li** battery)

IT Battery anodes
Battery cathodes
Chelating agents
Crosslinking agents
(polydimethylsiloxane and crosslinking agent in **Li** manganate cathodes and/or anodes for secondary **Li** battery)

IT **Epoxy** resins, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(polydimethylsiloxane and crosslinking agent in **Li** manganate cathodes and/or anodes for secondary **Li** battery)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(anodes; polydimethylsiloxane and crosslinking agent in **Li** manganate cathodes and/or anodes for secondary **Li** battery)

IT 12057-17-9, **Lithium** manganese oxide (LiMn_2O_4)
RL: DEV (Device component use); USES (Uses)
(cathodes; polydimethylsiloxane and crosslinking agent in **Li** manganate cathodes and/or anodes for secondary **Li** battery)

IT 108-78-1, **Melamine**, uses 9016-00-6,
Poly[oxy(dimethylsilylene)] 31900-57-9, Dimethylsilanediol homopolymer

39278-79-0, Coronate L

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (polydimethylsiloxane and crosslinking agent in Li manganate
 cathodes and/or anodes for secondary Li battery)

L43 ANSWER 14 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:757022 CAPLUS

DOCUMENT NUMBER: 133:311825

TITLE: Pasty masses with nanocrystalline materials for
 electrochemical components and layers and
 electrochemical components produced with the materials

INVENTOR(S): Neumann, Gerold; Birke, Peter

PATENT ASSIGNEE(S): Fraunhofer-Gesellschaft Zur Forderung Der Angewandten
 Forschung E.V., Germany

SOURCE: PCT Int. Appl., 33 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000063984	A2	20001026	WO 2000-EP3541	20000418
WO 2000063984	A3	20010419		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
DE 19948548	A1	20001026	DE 1999-19948548	19991008
BR 2000009820	A	20020115	BR 2000-9820	20000418
EP 1194963	A2	20020410	EP 2000-938604	20000418
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002542589	T2	20021210	JP 2000-613016	20000418
PRIORITY APPLN. INFO.:				
			DE 1999-19917581 A	19990419
			DE 1999-19948548 A	19991008
			WO 2000-EP3541 W	20000418

AB The invention relates to a pasty material that can be used in electrochem. components comprising (A) 0-70 wt.% of a matrix contg. at least one org. polymer, its precursors or its prepolymers or consisting thereof; (B) 30-100 wt.% of inorg. material that can be electrochem. activated and that is preferably nonsol. in the matrix in the form of a solid substance and optionally a suspending agent for (B). The invention is characterized in that the electrochem. activatable material is at least partially a nanocryst. powder, with the proviso that material (B) is not a material that can be used as electrode material in the absence of (A). The

material is suitable for producing self-supporting layers or layers placed on a substrate, from which or with which layered composites with electrochem. properties such as accumulators, batteries, condensers (supercaps), solar cells and electrochrome display elements can be produced. The invention also relates to a method for producing the materials, layers and layered composites.

- IC ICM H01M004-02
ICS H01M004-04; H01M004-62; H01M010-40; H01M006-18; H01G009-00;
G02F001-15; H01L031-00
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 74, 76
- ST battery composite pasty mass nanocryst material; condenser composite pasty mass nanocryst material; solar cell composite pasty mass nanocryst material; electrochrome display composite pasty mass nanocryst material
- IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(acrylates; pasty masses with nanocryst. materials for electrochem. components and layers)
- IT Rubber, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(halogenated and nonhalogenated; pasty masses with nanocryst. materials for electrochem. components and layers)
- IT **Battery electrolytes**
Electrochromic imaging devices
Electrolytes
Soot
(pasty masses with nanocryst. materials for electrochem. components and layers)
- IT Alkali metal salts
Alkaline earth salts
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(pasty masses with nanocryst. materials for electrochem. components and layers)
- IT **Aminoplasts**
Epoxy resins, uses
Phenolic resins, uses
Polycarbonates, uses
Polyesters, uses
Polymers, uses
Polysaccharides, uses
Proteins, general, uses
Resins
Waxes
RL: TEM (Technical or engineered material use); USES (Uses)
(pasty masses with nanocryst. materials for electrochem. components and layers)
- IT Plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastics; pasty masses with nanocryst. materials for electrochem. components and layers)
- IT 96-49-1, Ethylene carbonate 1313-27-5, Molybdenum trioxide, uses

1314-13-2, Zinc oxide, uses 1314-35-8, Tungsten trioxide, uses
 7440-44-0, Carbon, uses 12190-79-3, Cobalt lithium oxide
 colio2 13463-67-7, Titania, uses 21651-19-4, Tin oxide sno
 RL: DEV (Device component use); USES (Uses)

(pasty masses with nanocryst. materials for electrochem. components and layers)

IT 7782-42-5, Graphite, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(pasty masses with nanocryst. materials for electrochem. components and layers)

IT 120479-61-0P, Aluminum lithium titanium phosphate

Al_{0.3}Li_{1.3}Ti_{1.7}(PO₄)₃

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(pasty masses with nanocryst. materials for electrochem. components and layers)

IT 7446-70-0, Aluminum chloride (AlCl₃), reactions 7447-41-8,

Lithium chloride, reactions 7705-07-9, Titaniumchloride ticl₃, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(pasty masses with nanocryst. materials for electrochem. components and layers)

IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer

RL: TEM (Technical or engineered material use); USES (Uses)

(pasty masses with nanocryst. materials for electrochem. components and layers)

L43 ANSWER 15 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:686823 CAPLUS

DOCUMENT NUMBER: 133:284090

TITLE: Secondary battery with non-aqueous liquid electrolyte and its manufacture

INVENTOR(S): Kuboki, Takashi; Sato, Asako; Takami, Norio; Hasebe, Hiroyuki; Yamada, Shuji; Osaki, Takahisa; Kanda, Motoshi

PATENT ASSIGNEE(S): Toshiba Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000268875	A2	20000929	JP 1999-69219	19990315
PRIORITY APPLN. INFO.:			JP 1999-69219	19990315

AB A secondary battery consisting of a pos. electrode sheet, a separator, and a neg. electrode sheet with a non-aq. liq. electrolyte and assembled in .gtoreq.2 layers is sealed by impregnating the assembly with a soln. consisting a solvent having a b.p. .ltoreq.140.degree. and compds. having

reactive functional groups such as epoxy, amino, amido, carbonic, ester, ether, anhydride, nitril, ethylene, or acetylene group which polymerizes into polymers having a mol. wt. .ltoreq.20,000. The solvent in the sealing soln. is removed by heating under pressure.

IC ICM H01M010-40
ICS H01M010-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST flat thin battering sealing
IT Secondary batteries
(lithium; sealing of secondary battery with non-aq. liq. electrolyte)
IT Sealing
(sealing of secondary battery with non-aq. liq. electrolyte)
IT 78-67-1, Azobisisobutyronitrile 79-41-4, Methacrylic acid, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sealing soln. compn.; sealing of secondary battery with non-aq. liq. electrolyte)

L43 ANSWER 16 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:418121 CAPLUS
DOCUMENT NUMBER: 133:20085
TITLE: Nonaqueous electrolyte batteries
INVENTOR(S): Yoshimura, Seiji; Noma, Toshiyuki; Yonezu, Ikuo
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000173572	A2	20000623	JP 1998-340654	19981130
PRIORITY APPLN. INFO.:			JP 1998-340654	19981130
AB The batteries use separators composed of an O, N, and/or Si contg. polymer, having electrolyte resistance equal or greater than polypropylene and tensile strength .gtoreq.350 kg/cm2.				
IC	ICM H01M002-16			
	ICS H01M006-16; H01M010-40			
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)			
ST	battery separator electrolyte resistant high strength polymer			
IT	Fluoropolymers, uses Polyamide fibers, uses Polyamides, uses Polyimide fibers Polyimides, uses Polysiloxanes, uses			
	RL: DEV (Device component use); PRP (Properties); USES (Uses) (electrolyte resistant high tensile strength polymer composites for			

separators in secondary lithium batteries)
 IT Secondary battery separators
 (electrolyte resistant high tensile strength polymer
 separators in secondary lithium batteries)
 IT Aminoplasts
 Epoxy resins, uses
 Polycarbonates, uses
 Polyesters, uses
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (electrolyte resistant high tensile strength polymers for separators in
 secondary lithium batteries)
 IT 9002-88-4 9003-07-0, Polypropylene
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (electrolyte resistant high tensile strength polymer composites for
 separators in secondary lithium batteries)
 IT 9003-08-1, Formaldehyde-melamine copolymer 9003-56-9,
 Acrylonitrile-butadiene-styrene copolymer
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (electrolyte resistant high tensile strength polymers for separators in
 secondary lithium batteries)

L43 ANSWER 17 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:368489 CAPLUS
 DOCUMENT NUMBER: 133:18277
 TITLE: Ionically conductive compositions and cells made from
 them
 INVENTOR(S): Takaoka, Kazuchiyo; Ikegami, Koshiro; Hyodo, Kenji;
 Watanabe, Hiroaki; Hino, Takakazu; Shikano, Naoki;
 Andou, Eiji
 PATENT ASSIGNEE(S): Mitsubishi Paper Mills Ltd., Japan; Nippon Unicar Co.,
 Ltd.
 SOURCE: PCT Int. Appl., 73 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000031186	A1	20000602	WO 1999-JP5707	19991015
W: DE, JP, US				
JP 2000154254	A2	20000606	JP 1998-331521	19981120
DE 19982656	T	20010517	DE 1999-19982656	19991015
PRIORITY APPLN. INFO.:			JP 1998-331521	A 19981120
			WO 1999-JP5271	W 19990928
			WO 1999-JP5707	W 19991015

AB The compns. comprise linear copolymers derived from compds. A and B both
 bearing 2 functional groups and preferably crosslinked, and an
 electrolyte. Thus, mixing GO-p-C6H4CH2-p-C6H4OCH2CHOHCH2O-p-C6H4CH2-p-
 C6H4OG (G = glycidyl group) 56.8 with 3,9-bis(3-aminopropyl
)-2,4,8,10-teraoxaspiro[5.5]undecane 27.4, tetrabutylammonium perchlorate

10, and DMF 80 parts and heating at 100.degree. for 6 h gave an ionically conductive gel compn. with cond. 5×10^{-5} S/cm.

IT 271790-63-7P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(ionically conductive compns. and cells made from them)

RN 271790-63-7 CAPLUS

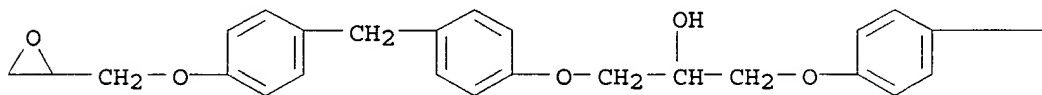
CN 2-Propanol, 1,3-bis[4-[[4-(oxiranylmethoxy)phenyl]methyl]phenoxy]-, polymer with 2,4,8,10-tetraoxaspiro[5.5]undecane-3,9-dipropanamine (9CI)
(CA INDEX NAME)

CM 1

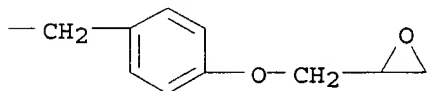
CRN 141087-33-4

CMF C35 H36 O7

PAGE 1-A



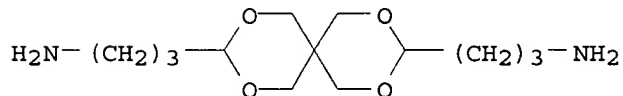
PAGE 1-B



CM 2

CRN 21587-74-6

CMF C13 H26 N2 O4



IC ICM C08L101-02

ICS C08L083-10; H01B001-06; H01B001-12

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 52

ST epoxy amine adduct polymer conductive compn elec cell;
battery cell elec conductive compn

IT Electrolytes

(ionically conductive compns. and cells made from them)

- IT Secondary batteries
(lithium; ionically conductive compns. and cells made from them)
- IT Polysiloxanes, preparation
Polysiloxanes, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyoxyalkylene-, block, graft; ionically conductive compns. and cells made from them)
- IT Polysiloxanes, preparation
Polysiloxanes, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyoxyalkylene-, block; ionically conductive compns. and cells made from them)
- IT Polyurethanes, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyoxyalkylene-, gel; ionically conductive compns. and cells made from them)
- IT Polyoxyalkylenes, preparation
Polyoxyalkylenes, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysiloxane-, block, graft; ionically conductive compns. and cells made from them)
- IT Polyoxyalkylenes, preparation
Polyoxyalkylenes, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polysiloxane-, block; ionically conductive compns. and cells made from them)
- IT 171483-98-ODP, Dimethylsilanediol-ethylene oxide-methylsilanediol graft copolymer methyl ether, trimethylsilyl-terminated 271790-67-1P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(blends; ionically conductive compns. and cells made from them)
- IT 1923-70-2, Tetrabutylammonium perchlorate 7791-03-9, **Lithium** perchlorate 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 90076-65-6, **Lithium** bis(trifluoromethylsulfonyl)amide
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolytes; ionically conductive compns. and cells made from them)
- IT 272109-73-6P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(gel; ionically conductive compns. and cells made from them)
- IT 1189-93-1DP, 1,1,3,3,5,5-Hexamethyltrisiloxane, polymers with ethylenically unsatd. monomers and polysiloxanes 1469-70-1DP, Allyl ethyl carbonate, reaction products with polysiloxanes 17832-16-5DP,

Triallyl trimesate, polymers with ethylenically unsatd. group-contg. monomers and hydrogen-terminated polysiloxanes 60120-15-2DP, polymers with ethylenically unsatd. group-contg. monomers and hydrogen-terminated polysiloxanes 60120-15-2DP, polymers with ethylenically unsatd. compds. and siloxanes 134196-67-1DP, polymers with polysiloxanes 141668-87-3DP, polymers with ethylenically unsatd. group-contg. monomers and hydrogen-terminated polysiloxanes 156118-35-3DP, hydrogen-terminated, polymers with ethylenically unsatd. group-contg. monomers 156309-05-6P, Dimethylsilanediol-ethylene oxide-propylene oxide block copolymer 176896-14-3DP, Dimethylsilanediol-ethylene oxide-propylene oxide block graft copolymer, trimethylsilyl-terminated 271790-78-4DP, polymers with ethylenically unsatd. group-contg. monomers and hydrogen-terminated polysiloxanes 271790-80-8DP, polymers with ethylenically unsatd. group-contg. monomers and hydrogen-terminated polysiloxanes 272109-74-7P 272109-75-8P 272109-76-9P 272109-77-0P 272109-78-1P 272109-79-2P 272109-80-5P 272109-81-6P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (gel; ionically conductive compns. and cells made from them)

IT 271790-63-7P 272109-72-5P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (ionically conductive compns. and cells made from them)

IT 271790-72-8
 RL: MOA (Modifier or additive use); USES (Uses)
 (ionically conductive compns. and cells made from them)

IT 33454-82-9, **Lithium** trifluoromethanesulfonate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (ionically conductive compns. and cells made from them)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L43 ANSWER 18 OF 35 . CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:49084 CAPLUS

DOCUMENT NUMBER: 132:95773

TITLE: Secondary nonaqueous electrolyte
 batteries using lithium manganese
 mixed oxides in cathodes

INVENTOR(S): Hara, Kenji; Maijima, Toshikazu; Okuda, Masahisa

PATENT ASSIGNEE(S): Shin-Kobe Electric Machinery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000021408	A2	20000121	JP 1998-185150	19980630
PRIORITY APPLN. INFO.:			JP 1998-185150	19980630

AB The batteries have cathode active masses contg. Li

$(1+x)\text{Mn}(2-x)\text{MO}_4$ [0 .ltoreq. x .ltoreq. 0.2; M = metal element except Mn; 0.01 .times. (2 - y) .ltoreq. M .ltoreq. 0.2 .times. (2 - x)], Li -intercalating anodes, and nonaq. electrolyte solns., and either the cathode or anode active masses contain elec. conductors and binders contg. crosslinked thermoplastic resins having carboxyl groups or amide groups. The batteries have high capacity and long cycle life.

IC ICM H01M004-62

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST battery cathode **lithium** manganese oxide; crosslinked thermoplastic binder **lithium** battery

IT **Aminoplasts**

RL: MOA (Modifier or additive use); USES (Uses)

(crosslinking agent; secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT **Epoxy** resins, uses

RL: MOA (Modifier or additive use); USES (Uses)

(crosslinking agents; secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT Secondary **batteries**

(**lithium**; secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT **Battery** anodes

Battery cathodes

Binders

(secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT Oxides (inorganic), uses

RL: DEV (Device component use); USES (Uses)

(secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT Plastics, uses

RL: DEV (Device component use); USES (Uses)

(thermoplastics; secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT 9003-08-1, **Melamine** resin

RL: MOA (Modifier or additive use); USES (Uses)

(crosslinking agent; secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT 75-13-8D, Isocyanic acid, esters

RL: MOA (Modifier or additive use); USES (Uses)

(crosslinking agents; secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT 25119-83-9, Acrylic acid-butyl acrylate copolymer
 RL: DEV (Device component use); USES (Uses)
 (polyisocyanate-crosslinked; secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

IT 172922-67-7, **Lithium** manganese oxide (Li1.11Mn1.89O4)
 RL: DEV (Device component use); USES (Uses)
 (secondary nonaq. **electrolyte batteries** using Li Mn mixed oxide cathodes and crosslinked thermoplastic resin binders)

L43 ANSWER 19 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:610804 CAPLUS

DOCUMENT NUMBER: 131:216545

TITLE: Safe secondary batteries inhibiting battery reaction and dangerous temperature elevation in such as overcharging

INVENTOR(S): Sato, Asako; Ota, Hideo; Matsuda, Nao; Hasebe, Hiroyuki; Osaki, Takaharu

PATENT ASSIGNEE(S): Toshiba Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11260413	A2	19990924	JP 1998-57099	19980309
PRIORITY APPLN. INFO.:			JP 1998-57099	19980309

AB The batteries comprise thermosetting resins and .gtoreq.1 selected from curing agents and curing accelerating catalysts. The thermosetting resins may be urea resins, **melamine** resins, phenolic resins, **epoxy** resins, unsatd. polyesters, alkyd resins, urethane resins, and/or ebonites. When the thermosetting resins and the additives are included in electrolytes, the electrolytes are solidified or gelled to inhibit battery reaction in internal temp. elevation by such as overcharging. Thus, a secondary **Li** battery contg. a novolak **epoxy** resin, phthalic anhydride, and an imidazole curing catalyst in the electrolyte was manufd.

IC ICM H01M010-40

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 39

ST battery temp elevation inhibitor thermosetting resin; ebonite thermosetting additive battery safety; novolak **epoxy** resin thermosetting additive battery; safety battery temp elevation inhibitor thermosetting resin

IT Anhydrides

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

- (curing agent; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT **Amines**, uses
Phosphines
RL: CAT (Catalyst use); USES (Uses)
(curing catalyst; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT Phenolic resins, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(epoxy, novolak, thermosetting; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT Rubber, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(hard, thermosetting; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT Secondary batteries
(lithium; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT **Epoxy** resins, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(phenolic, novolak, thermosetting; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT Safety
Secondary batteries
(safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT **Battery electrolytes**
(thermosetting resins in; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT Acrylic polymers, uses
Alkyd resins
Aminoplasts
Epoxy resins, uses
Phenolic resins, uses
Plastics, uses
Polyureas
Polyurethanes, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(thermosetting; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT Polyesters, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(unsatd., thermosetting; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)
- IT 85-44-9, Phthalic anhydride
RL: MOA (Modifier or additive use); USES (Uses)

(curing agent; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)

IT 288-32-4, Imidazole, uses
 RL: CAT (Catalyst use); USES (Uses)
 (curing catalyst; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)

IT 9003-08-1
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (thermosetting; safe secondary batteries contg. thermosetting resins and their curing accelerator and/or catalysts)

L43 ANSWER 20 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:421890 CAPLUS

DOCUMENT NUMBER: 131:61138

TITLE: Separators for electrochemical cells

INVENTOR(S): Carlson, Steven A.; Deng, Zhongyi; Ying, Qicong; Skotheim, Terje A.

PATENT ASSIGNEE(S): Moltech Corporation, USA

SOURCE: PCT Int. Appl., 76 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9933125	A1	19990701	WO 1998-US26913	19981217
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6153337	A	20001128	US 1997-995089	19971219
AU 9919263	A1	19990712	AU 1999-19263	19981217
EP 1042826	A1	20001011	EP 1998-964064	19981217
R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, IE, FI				
JP 2001527274	T2	20011225	JP 2000-525937	19981217
PRIORITY APPLN. INFO.:			US 1997-995089	A2 19971219
			WO 1998-US26913	W 19981217

AB This invention pertains to separators for electrochem. cells which comprise a microporous pseudo-boehmite layer; electrolyte elements comprising such separators; elec. current producing cells comprising such separators; and methods of making such separators, electrolyte elements and cells. The pseudo-boehmite layer has a pore vol. of 0.3-1.0 cm³/g and an av. pore diam. of 1-300 nm.

IC ICM H01M002-16

ICS H01M006-14; H01M010-14; H01M010-36; B01D071-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery separator pseudoboehmite

IT Polyoxyalkylenes, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (alkylated; separators for electrochem. cells)

IT Polyurethanes, uses
 Polyvinyl butyrals
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (binder; separators for electrochem. cells)

IT Polymers, uses
 RL: DEV (Device component use); USES (Uses)
 (carbon-sulfur; separators for electrochem. cells)

IT Quaternary ammonium compounds, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polymer contg.; separators for electrochem. cells)

IT Conducting polymers
 (pseudo-boehmite impregnated with; separators for electrochem. cells)

IT Battery cathodes
Battery electrolytes
 Polymer electrolytes
 Secondary battery separators
 (separators for electrochem. cells)

IT Polysulfides
 RL: DEV (Device component use); USES (Uses)
 (separators for electrochem. cells)

IT **Aminoplasts**
 Epoxy resins, uses
 Polyesters, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (separators for electrochem. cells)

IT Gelatins, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (separators for electrochem. cells)

IT 9002-89-5, Polyvinyl alcohol 9002-98-6 9003-05-8, Polyacrylamide
 9003-39-8, Polyvinylpyrrolidone
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (binder; separators for electrochem. cells)

IT 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses
 7631-86-9, Silica, uses 13463-67-7, Titanium oxide, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (colloidal; separators for electrochem. cells)

IT 7439-93-2, Lithium, uses 7704-34-9, Sulfur, uses 12798-95-7
 39448-96-9, Lithium graphite 53680-59-4 63957-70-0, Boehmite
 (Al₂O₃.xH₂O)
 RL: DEV (Device component use); USES (Uses)
 (separators for electrochem. cells)

IT 57-55-6, Propylene glycol, uses 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, Isopropanol, uses 71-23-8, 1-Propanol, uses 71-36-3, 1-Butanol, uses 78-92-2, 2-Butanol 107-21-1, Ethylene glycol, uses 109-86-4, 2-Methoxyethanol 110-80-5, 2-Ethoxyethanol 111-76-2, 2-Butoxyethanol 9003-08-1, Formaldehyde-melamine copolymer 9003-19-4, Polyvinyl ether 9011-05-6, Formaldehyde urea copolymer 25038-59-9, Melinex 516, uses 25322-68-3D, Peo, alkylated
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(separators for electrochem. cells)

IT 9005-25-8, Starch, uses 64401-02-1, Photomer 4028
RL: TEM (Technical or engineered material use); USES (Uses)
(separators for electrochem. cells)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L43 ANSWER 21 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:296780 CAPLUS

DOCUMENT NUMBER: 130:299383

TITLE: Epoxy based compositions for solid electrolyte in secondary lithium ion batteries

INVENTOR(S): Tanino, Katsumi; Futaguchi, Tomoaki; Yamazaki, Shigekazu; Terasawa, Takashi; Nishikawa, Satoshi
PATENT ASSIGNEE(S): Toyama Prefecture, Japan; Sunstar Engineering, Inc.
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

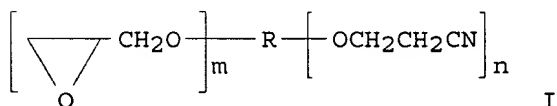
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11121036	A2	19990430	JP 1997-281986	19971015
PRIORITY APPLN. INFO.:			JP 1997-281986	19971015

GI



AB The compns. contain cyanoethoxylated epoxy resin I [R = (m+n) valent residue of a polyhydroxy compd. after removing all OH groups, (m+n) .gtoreq.2, m >1, and n >1], a hardener of a polyamine contg. .gtoreq.2 active H atoms on NH2 and/or NH groups or of a cyanoethylated amine compd. formed by reacting part of the active H atoms of the polyamine with (meth)acryloyl or glycidyl groups, a solvent

(R3O)aR4(OCH2CH2CN)b [R3 = C1-3 alkyl group, R4 = residue of a compd. contg. 1-4 OH groups after removing all the OH groups, a = 0-3, b = 1-4, and (a+b) = 1-4], and a Li salt.

IT 223459-62-9

RL: DEV (Device component use); USES (Uses)

(epoxy based solid polymer electrolyte compns. for secondary lithium batteries)

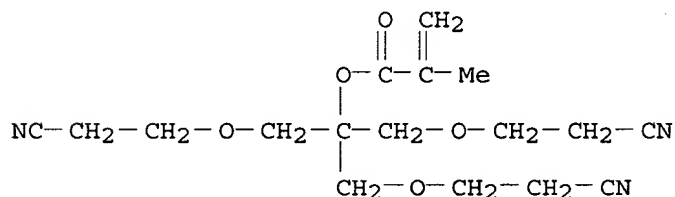
RN 223459-62-9 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(2-cyanoethoxy)-1,1-bis[(2-cyanoethoxy)methyl]ethyl ester, polymer with 3,3'-[1,2-ethanediylbis(oxy)]bis[propanenitrile] and 3-[2-(oxiranylmethoxy)-1-[(oxiranylmethoxy)methyl]ethoxy]propanenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 223459-61-8

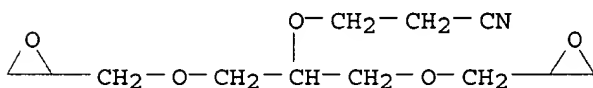
CMF C17 H23 N3 O5



CM 2

CRN 159335-65-6

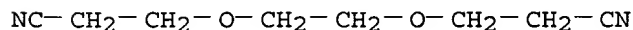
CMF C12 H19 N O5



CM 3

CRN 3386-87-6

CMF C8 H12 N2 O2



IC ICM H01M010-40

ICS C08G059-20; C08G059-50

KOROMA EIC1700

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST **lithium battery epoxy polymer electrolyte compn**
 IT **Battery electrolytes**
 (epoxy based solid polymer electrolyte compns. for
 secondary lithium batteries)
 IT 7791-03-9, **Lithium perchlorate 223459-62-9**
 RL: DEV (Device component use); USES (Uses)
 (epoxy based solid polymer electrolyte compns. for
 secondary lithium batteries)

L43 ANSWER 22 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:113260 CAPLUS

DOCUMENT NUMBER: 130:141661

TITLE: Secondary nonaqueous **electrolyte batteries**

INVENTOR(S): Sakai, Kenichi; Yamamoto, Kenji; Ueda, Naoki;
 Urushibara, Masaru

PATENT ASSIGNEE(S): Nippon Denso Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11040194	A2	19990212	JP 1997-192239	19970717
PRIORITY APPLN. INFO.:			JP 1997-192239	19970717
AB	The batteries use an electrolyte contg. an optical stabilizing agent selected from naphthoquinone, fluorene, epoxides , 1,1-diphenyl-2-picrylhydrazyl compds., and hindered amines .			
IC	ICM H01M010-40			
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)			
ST	nonaq battery electrolyte optical stabilizing agent; naphthoquinone battery electrolyte stabilizing agent; fluorene battery electrolyte stabilizing agent; epoxide battery electrolyte stabilizing agent; hindered amine battery electrolyte stabilizing agent; phenylpicrylhydrazyl deriv battery electrolyte stabilizing agent			
IT	Battery electrolytes (nonaq. electrolyte solns. contg, optical stabilizing agents for secondary lithium batteries)			
IT	96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 21324-40-3, Lithium hexafluorophosphate RL: DEV (Device component use); USES (Uses) (nonaq. electrolyte solns. contg, optical stabilizing agents for secondary lithium batteries)			
IT	86-73-7, Fluorene 95-14-7, 1H-Benzotriazole 106-51-4, 2,5-Cyclohexadiene-1,4-dione, uses 122-60-1, 1,2- Epoxy			

-3-phenoxypropane 130-15-4, 1,4-Naphthalenedione 1707-75-1,
 1,1-Diphenyl-2-picrylhydrazine
 RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolyte solns. contg, optical stabilizing agents for
 secondary lithium batteries)

L43 ANSWER 23 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:96286 CAPLUS

DOCUMENT NUMBER: 130:111360

TITLE: Vinylidene fluoride copolymer for gel-form solid
electrolyte formation in **battery**

INVENTOR(S): Katsurao, Takumi; Horie, Katsuo; Nagai, Aisaku;
 Ichikawa, Yukio

PATENT ASSIGNEE(S): Kureha Kagaku Kogyo Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 37 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9905191	A1	19990204	WO 1998-JP3292	19980723
W: CA, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 11130821	A2	19990518	JP 1998-222472	19980723
EP 999223	A1	20000510	EP 1998-933907	19980723
R: DE, FR, GB				
US 6372388	B1	20020416	US 2000-463301	20000124
PRIORITY APPLN. INFO.:			JP 1997-212726	A 19970724
			WO 1998-JP3292	W 19980723

AB A solid polymer electrolyte having improved ionic cond., adhesion to a collector base, and heat resistance, useful for improving the properties of non-water-base batteries such as lithium ion batteries, is formed from a crosslinked vinylidene fluoride copolymer comprising 50 to 97 mol% of vinylidene fluoride units and 0.1 to 5 mol% of units derived from either a monoester of an unsatd. dibasic acid or an **epoxy** vinyl monomer. Thus, monomethyl maleate 8.0 g, vinylidene fluoride 372 g, and hexafluoropropene 28 g was suspension-copolyd., then 10 g of the copolymer was dissolved in THF 90 g, and 1.5 g of crosslinking agent **hexamethylenediamine** was added, which was mixed with 4.5 g LiPF₆ in soln., applied on glass plate, dried, to give a solid electrolyte film, showing ionic cond. 7.9×10^{-3} S/cm and shape-maintaining temp. 100.degree..

IC ICM C08F214-22

ICS C08L027-16; H01B001-12; H01M010-40

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 52

ST vinylidene fluoride copolymer gel solid **electrolyte**
battery

IT Battery anodes
 Battery cathodes
 Battery electrodes
 (vinylidene fluoride copolymer for gel-form solid electrolyte
 in battery)

IT Fluoropolymers, uses
 RL: DEV (Device component use); USES (Uses)
 (vinylidene fluoride copolymer for gel-form solid electrolyte
 in battery)

IT 219748-63-7P, Monomethyl maleate-vinylidene fluoride-hexafluoropropene
 copolymer 219748-64-8P, Allyl glycidyl ether-vinylidene
 fluoride-chlorotrifluoroethylene copolymer 219748-65-9P, Monomethyl
 maleate-vinylidene fluoride-hexafluoropropene-hexamethylenediamine
 copolymer 219748-66-0P, Allyl glycidyl ether-vinylidene
 fluoride-chlorotrifluoroethylene-hexamethylenediamine copolymer
 219748-67-1P, Monomethyl maleate-vinylidene fluoride-hexafluoropropene-
 triallyl isocyanurate copolymer 219748-68-2P, Allyl glycidyl
 ether-vinylidene fluoride-chlorotrifluoroethylene-triallyl isocyanurate
 copolymer
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (vinylidene fluoride copolymer for gel-form solid electrolyte
 in battery)

IT 12190-79-3, Lithium cobalt oxide (LiCoO₂) 21324-40-3,
 Lithium phosphorus fluoride (LiPF₆)
 RL: MOA (Modifier or additive use); USES (Uses)
 (vinylidene fluoride copolymer for gel-form solid electrolyte
 in battery)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L43 ANSWER 24 OF 35 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1998:466331 CAPLUS
 DOCUMENT NUMBER: 129:136626
 TITLE: Salts of pentacyclic or tetraazapentalene-based anions
 for use as ionic conductors
 INVENTOR(S): Armand, Michel; Choquette, Yves; Gauthier, Michel;
 Michot, Christophe
 PATENT ASSIGNEE(S): Centre National de la Recherche Scientifique (CNRS),
 Fr.; Hydro-Quebec
 SOURCE: Eur. Pat. Appl., 42 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: French
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 850933	A1	19980701	EP 1997-403188	19971230
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

CA 2194127	AA	19980630	CA 1996-2194127	19961230
CA 2199231	AA	19980905	CA 1997-2199231	19970305
CA 2244979	AA	19980709	CA 1997-2244979	19971230
CA 2248242	AA	19980709	CA 1997-2248242	19971230
CA 2248244	AA	19980709	CA 1997-2248244	19971230
CA 2248246	AA	19980709	CA 1997-2248246	19971230
CA 2248303	AA	19980709	CA 1997-2248303	19971230
CA 2248304	AA	19980709	CA 1997-2248304	19971230
WO 9829358	A2	19980709	WO 1997-CA1008	19971230
WO 9829358	A3	19981008		
W: CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
WO 9829399	A1	19980709	WO 1997-CA1009	19971230
W: CA, JP, US				
WO 9829389	A1	19980709	WO 1997-CA1010	19971230
W: CA, JP, US				
WO 9829396	A1	19980709	WO 1997-CA1011	19971230
W: CA, JP, US				
WO 9829877	A1	19980709	WO 1997-CA1012	19971230
W: CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
WO 9829388	A1	19980709	WO 1997-CA1013	19971230
W: CA, JP, US				
EP 889863	A2	19990113	EP 1997-951051	19971230
R: DE, FR, GB, IT				
EP 890176	A1	19990113	EP 1997-951052	19971230
EP 890176	B1	20010620		
R: DE, FR, GB, IT				
JP 2000508114	T2	20000627	JP 1998-529517	19971230
JP 2000508346	T2	20000704	JP 1998-529516	19971230
JP 2000508676	T2	20000711	JP 1998-529514	19971230
JP 2000508677	T2	20000711	JP 1998-529515	19971230
JP 2000508678	T2	20000711	JP 1998-529518	19971230
JP 2002514245	T2	20020514	JP 1998-529513	19971230
US 6120696	A	20000919	US 1998-125792	19980828
US 6171522	B1	20010109	US 1998-101811	19981119
US 6333425	B1	20011225	US 1998-101810	19981119
US 6228942	B1	20010508	US 1998-125798	19981202
US 6395367	B1	20020528	US 1998-125799	19981202
US 6319428	B1	20011120	US 1998-125797	19981203
US 6365068	B1	20020402	US 2000-609362	20000630
US 2001024749	A1	20010927	US 2001-826941	20010406
US 6506517	B2	20030114		
US 2002009650	A1	20020124	US 2001-858439	20010516
US 2003052310	A1	20030320	US 2002-253035	20020924

PRIORITY APPLN. INFO.:

CA 1996-2194127	A	19961230
CA 1997-2199231	A	19970305
WO 1997-CA1008	W	19971230
WO 1997-CA1009	W	19971230
WO 1997-CA1010	W	19971230
WO 1997-CA1011	W	19971230
WO 1997-CA1012	W	19971230

WO 1997-CA1013	W 19971230
US 1998-101811	A3 19981119
US 1998-125798	A3 19981202
US 1998-125797	A1 19981203
US 2001-858439	A1 20010516

OTHER SOURCE(S): MARPAT 129:136626

GI For diagram(s), see printed CA Issue.

AB Salts of metals, NO⁺, H₃O⁺, or NH₄⁺ with the heterocycles I [X_i = N, C, S or P derivs. (but .ltoreq.4 X = N)] or II (Y = electron-withdrawing group of specified structure) are ionic conductors, useful i.a., as catalysts for polymn. and other reactions or as colorants. The reaction of 1 mol aminoguanidine bicarbonate with 1.05 mol CF₃CO₂H in PhMe with azeotropic distn of H₂O gave 92% 5-(trifluoromethyl)-1,3,4-triazole-2-amine, reaction of which with aq. K₂CO₃ gave 100% of the corresponding anion salt. Uses of the products in the above applications are exemplified.

IC ICM C07D249-04

ICS C07D233-90; C07D231-18; C07C255-46; C07D487-04; C07C317-44;
C07F009-6584; C08G065-22; C08G077-04; C08F220-44; C09K003-00;
H01M006-16; H01M010-40; C07B041-00; C08F004-00; C08J003-24

ICI C07D487-04, C07D249-00, C07D235-00

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 28, 40, 67

ST ionic conductor heterocyclic; tetrazapentalene salt ionic conductor;
triazine salt ionic conductor; polymn catalyst ionic conductor;
trifluoromethyltriazineamine salt ionic conductor;
aminoguanidine reaction trifluoroacetic acid

IT Diels-Alder reaction catalysts

(anionic heterocycle salts as Diels-Alder reaction catalysts)

IT Friedel-Crafts reaction catalysts

(anionic heterocycle salts as Friedel-Craft acylation catalysts)

IT Michael reaction catalysts

(anionic heterocycle salts as Michael addn. catalysts)

IT Aldol condensation catalysts

(anionic heterocycle salts as aldol reaction catalysts)

IT **Battery electrolytes**

(anionic heterocycle salts as **battery electrolytes**)

IT Polyoxyalkylenes, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(anionic imidazole group-contg.; prepn. of, as surfactants)

IT Fireproofing agents

Textiles

(anionic pyrazole deriv. polymers as fireproofing agents for Gore-Tex)

IT Antioxidants

(anionic salts of heterocyclic compds. as antioxidants)

IT Crosslinking catalysts

(anionic salts of heterocyclic compds. as crosslinking catalysts)

IT Ionic conductors

(anionic salts of heterocyclic compds. as ionic elec. conductors)

IT Acid-base indicators

(anionic salts of heterocyclic compds. as pH indicators in nonaq. media)

- IT Conducting polymers
(anionic salts of heterocyclic compds. as polymeric elec. conductors)
- IT Polymerization catalysts
(anionic salts of heterocyclic compds. as polymn. catalysts)
- IT Surfactants
(anionic salts of heterocyclic compds. as surfactants)
- IT Polysiloxanes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(anionic triazole group-contg.)
- IT Cyanine dyes
(anionic; anionic cyclopentadiene derivs. as cyanine dyes)
- IT Acrylic fibers, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(antistatic, anionic imidazole group-modified)
- IT Polymerization catalysts
(photopolymn.; anionic imidazole salts as photopolymn. catalysts)
- IT 74-87-3, Chloromethane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(Grignard reaction with decyne and perfluorobutanesulfonyl fluoride)
- IT 25233-30-1, Polyaniline
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(doping of, with anionic imidazole salts)
- IT 937-14-4, 3-Chloroperoxybenzoic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(epoxidn. of (difluoropropenyl)cyanotriazole)
- IT 25979-00-4P 210289-23-9P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and diazo reaction with Na cyanide)
- IT 210289-28-4P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and epoxidn.)
- IT 210289-25-1P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and reaction of diazotized with K trifluoromethanesulfonate)
- IT 7343-34-2P, 3,5-Dimethyl-1H-1,2,4-triazole
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and reaction with chlorine and hydrofluoric acid)
- IT 210289-50-2P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and reaction with tetramethoxypropane)
- IT 210469-92-4P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP
(Preparation); USES (Uses)
(prepn. and use as antioxidant)
- IT 210469-94-6P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)

- (prepn. and use as polymn. catalyst)
- IT 210289-63-7P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
- (prepn. as Diels-Alder reaction catalyst)
- IT 210289-59-1P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
- (prepn. as fireproofing agent for textiles)
- IT 210289-54-6P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
- (prepn. as photochem. polymn. catalyst)
- IT 210289-48-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
- (prepn. for use as surfactant)
- IT 709-62-6P 64139-67-9P 156118-35-3DP, Dimethylsilanediol-methylsilanediol copolymer, reaction products with (difluorobutenyl)cyanotriazole 210289-24-0P 210289-27-3P 210289-38-6P 210289-52-4DP, reaction products with Me hydrogen polysiloxanes
RL: IMF (Industrial manufacture); PREP (Preparation)
- (prepn. of)
- IT 210289-46-6P 210289-47-7P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
- (prepn. of)
- IT 210469-99-1P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
- (prepn. of, as anionic colorant)
- IT 210289-51-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
- (prepn. of, as surfactant)
- IT 112-76-5, Stearoyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with (trifluoromethyl)dicyanocyclopentadiene)
- IT 2926-27-4, Potassium trifluoromethanesulfonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with (trifluoromethyl)triazinediazonium salt)
- IT 13781-67-4, 3-Thiopheneethanol
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with (vinylsulfonyl)cyclopentadiene derivs.)
- IT 1068-57-1, Acetic acid hydrazide
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with Et acetimidate)
- IT 303-04-8 692-50-2, Hexafluoro-2-butyne
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with Na azide)
- IT 1000-84-6, Ethyl acetimidate

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with acetic hydrazide)

IT 76-05-1, reactions 210289-26-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with aminoguanidine)

IT 210469-93-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with azobis(cyanopentanoic acid))

IT 1122-28-7, 4,5-Dicyanoimidazole
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with benzoyl chloride and perfluorobutanesulfonyl fluoride)

IT 13637-84-8P, Chlorosulfonyl fluoride
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(reaction with bis(ethylhexyl)amine)

IT 7081-78-9, 1-Chloro-1-ethoxyethane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with bis(trifluoromethyl)pyrazole K salt)

IT 102-52-3, 1,1,3,3-Tetramethoxypropane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with butyl(heptafluoropropyl)dicyanoimidazole)

IT 210289-55-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with chloroethoxyethane)

IT 106-20-7P, Bis(2-ethylhexyl)amine
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(reaction with chlorosulfonyl fluoride)

IT 53188-07-1, Trolox 56512-49-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with dicyanobis(trifluoromethyl)cyclopentadiene K salt)

IT 2638-94-0, 4,4'-Azobis(4-cyanopentanoic acid)
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with dicyanobis(trifluoromethyl)cyclopentadiene Li salt)

IT 2893-78-9, Dichloroisocyanuric acid sodium salt
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with dicyanoimidazole)

IT 407-38-5P, 2,2,2-Trifluoroethyl trifluoroacetate 1648-99-3P,
2,2,2-Trifluoroethanesulfonyl chloride 13360-57-1P, Dimethylsulfamoyl chloride
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(reaction with dicyanoimidazole and benzoyl chloride)

IT 375-72-4, Nonafluorobutanesulfonyl fluoride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with dicyanoimidazole and benzoyl chloride)

IT 98-88-4, Benzoyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with dicyanoimidazole and perfluorobutanesulfonyl fluoride)

IT 110-61-2, Succinonitrile
RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with hexafluoroacetylacetone)

IT 26628-22-8, Sodium azide
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with hexafluorobutyne)

IT 764-93-2, 1-Decyne
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with methylmagnesium chloride and perfluorobutanesulfonyl fluoride)

IT 4546-95-6, 1,2,3-Triazole-4,5-dicarboxylic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with polyethylene glycol monododecyl ether)

IT 210289-37-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with stearoyl chloride)

IT 1522-22-1, 1,1,1,5,5,5-Hexafluoro-2,4-pentanedione
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with succinonitrile)

IT 77968-17-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with succinonitrile and Li hydride)

IT 210470-00-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with thiopheneethanol)

IT 9002-92-0, Polyethylene glycol monododecyl ether
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with triazoledicarboxylic acid)

IT 2582-30-1, **Aminoguanidine** bicarbonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with trifluoroacetic acid)

IT 210289-29-5P 210289-30-8P 210289-31-9P 210289-32-0P 210289-33-1P
210289-34-2P 210289-36-4P 210289-39-7P 210289-41-1P 210289-42-2P
210289-43-3P 210289-44-4P 210289-45-5P 210289-49-9P 210289-57-9P
210289-62-6P 210469-88-8P 210469-89-9P 210469-95-7P 210469-97-9P
210470-01-2P 210470-02-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(salts of pentacyclic or tetraazapentalene-based anions for use as ionic conductors)

IT 210469-91-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(salts of pentacyclic or tetraazapentalene-based anions for use as pH indicators in nonaq. media)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L43 ANSWER 25 OF 35 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1997:541964 CAPLUS
DOCUMENT NUMBER: 127:208133
TITLE: Anode materials for secondary nonaqueous electrolyte batteries, their manufacture, and the batteries

INVENTOR(S): Kitamura, Kenichi; Imoto, Masahiro; Yamada, Shinichiro
 PATENT ASSIGNEE(S): Sony Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09204918	A2	19970805	JP 1996-263479	19960912
PRIORITY APPLN. INFO.:			JP 1995-329782	19951125

AB The anode materials are carbonaceous materials contg. 0.1-5.0% (as the element) alkali metal, alk. earth metal, and/or P. The carbonaceous materials are formed by firing polymers, monomers, and/or O crosslinked pitch at 3000.degree. in an inert atm. and had interplanar spacing d002 .gtoreq.3.37.ANG.. The anode materials are prepd. by mixing compds. of the alkali metal, alk. earth metal, and/or P with a precursor for carbonaceous material and carbonizing the precursor. The batteries use Li contg. multi oxide cathodes and Li intercalating anodes composed of the above described carbonaceous materials. These batteries have high capacity.

IC ICM H01M004-58
 ICS H01M004-02; H01M010-40; C01B031-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery carbonaceous anode additive; alkali metal additive carbonaceous battery anode; alk earth metal carbonaceous anode battery; phosphorus additive carbonaceous anode lithium battery

IT Battery anodes
 (in manuf. of carbonaceous anode materials contg. alkali metals and alk. earth metals and phosphorus for secondary lithium batteries)

IT Acrylic polymers, processes
 Aminoplasts
 Epoxy resins, processes
 Polyimides, processes
 Polysiloxanes, processes
 Polyurethanes, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (in manuf. of carbonaceous anode materials contg. alkali metals and alk. earth metals and phosphorus for secondary lithium batteries)

IT Carbonaceous materials (technological products)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (manuf. of carbonaceous anode materials contg. alkali metals and alk. earth metals and phosphorus for secondary lithium batteries)

IT Phenolic resins, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (novolak; in manuf. of carbonaceous anode materials contg. alkali metals and alk. earth metals and phosphorus for secondary

lithium batteries)

IT Pitch
(oxygen crosslinked; in manuf. of carbonaceous anode materials contg. alkali metals and alk. earth metals and phosphorus for secondary lithium batteries)

IT Allylic compounds
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(polymers; in manuf. of carbonaceous anode materials contg. alkali metals and alk. earth metals and phosphorus for secondary lithium batteries)

IT Phenolic resins, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(resol; in manuf. of carbonaceous anode materials contg. alkali metals and alk. earth metals and phosphorus for secondary lithium batteries)

IT 1305-62-0, Calcium hydroxide, uses 1310-58-3, Potassium hydroxide, uses 1314-56-3, Phosphorus pentoxide, uses 7447-40-7, Potassium chloride, uses
RL: MOA (Modifier or additive use); USES (Uses)
(additives in carbonaceous anode materials and manuf. of the anode materials for secondary lithium batteries)

IT 84-62-8, Phenyl phthalate 110-00-9D, Furan, derivs., polymers 9003-08-1, Melamine resin
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(in manuf. of carbonaceous anode materials contg. alkali metals and alk. earth metals and phosphorus for secondary lithium batteries)

L43 ANSWER 26 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:693843 CAPLUS

DOCUMENT NUMBER: 125:304988

TITLE: Cathode compositions and solid electrolyte compositions for secondary lithium batteries

INVENTOR(S): Yano, Katsumi; Futakuchi, Tomoaki; Mimura, Katsuaki; Ishama, Ichiro; Yagi, Shinsuke

PATENT ASSIGNEE(S): Toyama Prefecture, Japan; Kooseru Kk; Hokuriku Elect Ind; Nissan Chemical Ind Ltd

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08236113	A2	19960913	JP 1995-63434	19950227
PRIORITY APPLN. INFO.:			JP 1995-63434	19950227

AB The cathode compns. contain (1) 1,3-glycidylloxy-2-(2'-cyanoethyl)oxypropane, (2) epoxy hardening agents, and (3) Sn oxide-contg. powd. Li compds. The electrolyte compns. contain

(1) reaction products from polyethylene glycol lithium perchlorate, (2) propylene carbonate, and (3) epoxy hardening agents.

IC ICM H01M004-58

ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST battery cathode lithium tin oxide; cyano epoxy resin
lithium battery; polyethylene glycol lithium perchlorate
electrolyte; propylene carbonate battery electrolyte

IT Battery electrolytes

(cyano epoxy monomer and hardener in Sn oxide-contg.

Li oxide cathode compn. and propylene carbonate-contg. ethylene
glycol Li perchlorate electrolyte compn.)

IT Cathodes

(battery, cyano epoxy monomer and hardener in Sn oxide-contg.

Li oxide cathode compn. and propylene carbonate-contg. ethylene
glycol Li perchlorate electrolyte compn.)

IT Epoxy resins, uses

RL: DEV (Device component use); IMF (Industrial manufacture); PRP
(Properties); PREP (Preparation); USES (Uses)

(cyano-contg., cyano epoxy monomer and hardener in Sn

oxide-contg. Li oxide cathode compn. and propylene
carbonate-contg. ethylene glycol Li perchlorate electrolyte
compn.)

IT 108-32-7, Propylene carbonate 88942-22-7 149087-95-6, Cobalt
lithium tin oxide

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(cyano epoxy monomer and hardener in Sn oxide-contg.

Li oxide cathode compn. and propylene carbonate-contg. ethylene
glycol Li perchlorate electrolyte compn.)

IT 112-24-3, Triethylenetetramine 1332-29-2, Tin oxide

RL: MOA (Modifier or additive use); USES (Uses)

(cyano epoxy monomer and hardener in Sn oxide-contg.

Li oxide cathode compn. and propylene carbonate-contg. ethylene
glycol Li perchlorate electrolyte compn.)

IT 159335-65-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(cyano epoxy monomer and hardener in Sn oxide-contg.

Li oxide cathode compn. and propylene carbonate-contg. ethylene
glycol Li perchlorate electrolyte compn.)

L43 ANSWER 27 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:607460 CAPLUS

DOCUMENT NUMBER: 125:226562

TITLE: Carbon-containing inclusion compound and its
preparation, and nonaqueous-electrolyte
battery with anode from this compound

INVENTOR(S): Xue, Jiayu Simon; Dahn, Jeffrey Raymond

PATENT ASSIGNEE(S): Moli Energy (1990) Ltd., Can.

SOURCE: Ger. Offen., 22 pp.

CODEN: GWXXBX

KOROMA EIC1700

DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19607901	A1	19960905	DE 1996-19607901	19960301
CA 2144037	AA	19960904	CA 1995-2144037	19950303
GB 2298516	A1	19960904	GB 1996-2476	19960207
GB 2298516	B2	19971217		
FR 2731216	A1	19960906	FR 1996-2917	19960228
FR 2731216	B1	19980821		
JP 08259213	A2	19961008	JP 1996-42736	19960229
US 5698340	A	19971216	US 1996-665993	19960619

PRIORITY APPLN. INFO.:

CA 1995-2144037 19950303
 US 1995-428330 19950425

- AB The compd. is AxSiyC1-yOz, where A is an alkali metal and esp. Li, $x > 0$, $0 < y < 1$ or $0.2 \leq y \leq 0.3$, and $0 < y/z < 4$ or ≈ 1.7 . The compd. is prepd. by pyrolysis of a polymeric (silane or silane-**epoxy** and novolak resin) precursor.
- IC ICM C01B033-46
 ICS C01B033-32; H01M004-48; H01M006-14
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 49
- ST carbon contg inclusion compd battery anode; silicon carbon inclusion compd battery anode; alkali metal carbon inclusion compd anode; **lithium** carbon inclusion compd battery anode; oxygen carbon inclusion compd battery anode
- IT **Epoxy** resins, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (in prepn. of carbon-contg. inclusion compd. for nonaq.-**electrolyte battery anode**)
- IT Anodes
 (battery, prepn. of carbon-contg. inclusion compd. for nonaq.-electrolyte)
- IT Phenolic resins, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (novolak, in prepn. of carbon-contg. inclusion compd. for nonaq.-**electrolyte battery anode**)
- IT 2530-83-8
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (in prepn. of carbon-contg. inclusion compd. for nonaq.-**electrolyte battery anode**)
- IT 7439-93-2DP, **Lithium**, carbon-contg. inclusion compds.
 181809-61-0P, Silicon carbide oxide (Si0.04C0.96O0.03) 181809-64-3P,
 Silicon carbide oxide (Si0.08C0.92O0.1) 181809-68-7P, Silicon carbide
 oxide (Si0.13C0.87O0.22) 181809-71-2P, Silicon carbide oxide
 (Si0.2C0.8O0.35) 181809-75-6P, Silicon carbide oxide (Si0.28C0.72O0.47)
 RL: DEV (Device component use); PNU (Preparation, unclassified); PRP
 (Properties); PREP (Preparation); USES (Uses)
 (prepn. for nonaq.-**electrolyte battery anode**)

IT 85-44-9, 1,3-Isobenzofurandione 103-67-3, N-Benzylmethylaniline
108-45-2, m-Phenylenediamine, uses 124-09-4, 1,6-
Hexanediamine, uses 150-13-0, 4-Aminobenzoic acid
RL: MOA (Modifier or additive use); USES (Uses)
(prepn. of carbon-contg. inclusion compd. for nonaq.-
electrolyte battery anode from silane and)

L43 ANSWER 28 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:313782 CAPLUS

DOCUMENT NUMBER: 124:348201

TITLE: Low self discharge nonaqueous batteries with
improved electrolytes

INVENTOR(S): Suemori, Atsushi; Shoji, Yoshihiro; Nishio, Koji;
Saito, Toshihiko

PATENT ASSIGNEE(S): Sanyo Denki Kk, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

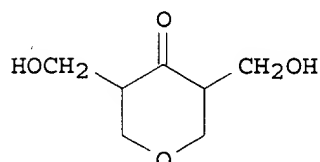
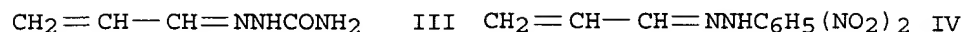
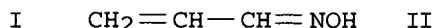
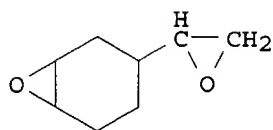
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

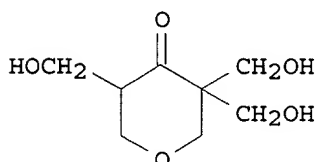
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 08078022	A2	19960322	JP 1994-232060	19940831
PRIORITY APPLN. INFO.:			JP 1994-232060	19940831

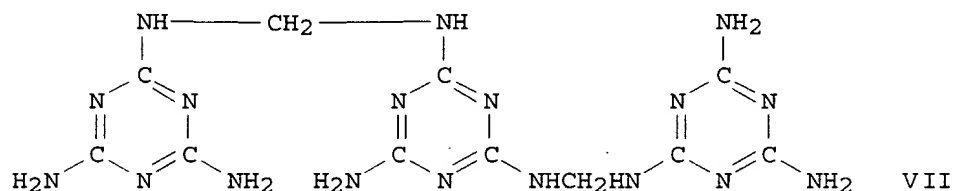
GI



V



VI



VII

AB The **batteries** use **electrolyte** solns. contg. 0.1-20% **epoxy** resin, homopolymers of acrolein or its derivs., acetone-HCHO resin, and/or **melamine** resin. The **epoxy** resin may be composed of monomers selected from glycidyl methacrylate, glycidyl phthalate, I, and their derivs. and have no.av. d.p. 3-100; the acrolein polymer contain monomers selected from II, III, IV, and their derivs. and have no. av. d.p. 3-100; the acetone-formaldehyde resin contains monomers V, VI, or their derivs. and have no. av. d.p. 3-100; and the **melamine** resin may contain monomers selected from monomethyloyl **melamine**, monomethylene **melamine**, VII, and their derivs. and have no. av. d.p. 3-100. The batteries are preferably primary and secondary Li batteries.

IT 25086-25-3 37099-12-0, Diglycidyl phthalate polymer

RL: MOA (Modifier or additive use); USES (Uses)

(polymer additives in electrolytes for low self discharge primary and secondary **lithium** batteries)

RN 25086-25-3 CAPLUS

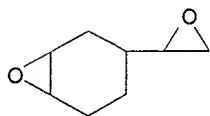
CN 7-Oxabicyclo[4.1.0]heptane, 3-oxiranyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-87-6

CMF C8 H12 O2

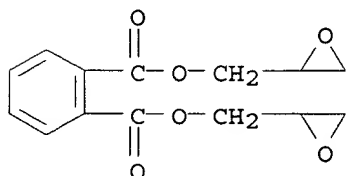
KOROMA EIC1700



RN 37099-12-0 CAPLUS
 CN 1,2-Benzenedicarboxylic acid, bis(oxiranylmethyl) ester, homopolymer (9CI)
 (CA INDEX NAME)

CM 1

CRN 7195-45-1
 CMF C14 H14 O6



IC ICM H01M006-16
 ICS H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST **lithium battery electrolyte epoxy**
 resin; acrolein polymer **lithium battery**
electrolyte; acetone formaldehyde resin **lithium**
battery electrolyte; melamine polymer
lithium battery electrolyte
 IT **Battery electrolytes**
 (polymer additives in **electrolytes** for low self discharge
 primary and secondary **lithium** batteries)
 IT **Epoxy** resins, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (polymer additives in electrolytes for low self discharge primary and
 secondary **lithium** batteries)
 IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4,
 1,2-Dimethoxyethane 21324-40-3, **Lithium** hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (polymer additives in electrolytes for low self discharge primary and
 secondary **lithium** batteries)
 IT 888-54-0D, polymers 5314-33-0D, polymers 6055-71-6D, polymers
 25067-05-4, Glycidyl methacrylate polymer 25068-14-8, Acrolein polymer
 25086-25-3 28134-81-8 37099-12-0, Diglycidyl phthalate
 polymer 67845-26-5D, polymers 176771-77-0D, polymers 176771-78-1D,
 polymers 176771-79-2 176771-80-5 176771-81-6
 RL: MOA (Modifier or additive use); USES (Uses)
 (polymer additives in electrolytes for low self discharge primary and

secondary lithium batteries)

L43 ANSWER 29 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:528440 CAPLUS

DOCUMENT NUMBER: 122:279718

TITLE: High conductivity **epoxy**-polymer solid electrolyte materials

INVENTOR(S): Yano, Katsumi; Futakuchi, Tomoaki; Terasawa, Takashi; Orito, Shinya; Takeda, Yutaka; Maekawa, Hiroshi; Yamada, Shigeru; Yagi, Shinsuke

PATENT ASSIGNEE(S): Toyama Prefecture, Japan; Kooseru Kk; Hokuriku Elect Ind; Kyoritsu Denko Kk; Kitamura Machinery Co Ltd; Nissan Chemical Ind Ltd

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06267329	A2	19940922	JP 1993-79091	19930312
PRIORITY APPLN. INFO.:			JP 1993-79091	19930312

AB Title high cond. **epoxy**-polymer solid electrolyte materials comprise (a) 1,3-diglycididyoxy-2-(2'-cyanoethoxy)propane (CN-DG), (b) reaction product of **epoxy** polyethylene glycol (PEG) of av. mol. wt. 200-600 with Li (LiPEG), (c) hardening accelerator (e.g. **triethylenetetramine**) and (d) ionic conductor (e.g. **lithium** tetrafluoroborate or **lithium** perchlorate). Title high cond. **epoxy**-polymer solid electrolyte materials can be used as film electrode materials in polymer batteries.

IC ICM H01B001-06

ICS C08G059-20; C08L063-00

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 75

ST **epoxy** polymer solid electrolyte polymer battery

IT Batteries, primary

(manuf. of high cond. **epoxy**-polymer solid electrolyte materials for)

IT **Epoxy** resins, uses

RL: TEM (Technical or engineered material use); USES (Uses) (polyethylene glycol contg.; manuf. of high cond. **epoxy** -polymer solid electrolyte materials using)

IT 25322-68-3D, Polyethylene glycol, reaction product with **lithium**

RL: TEM (Technical or engineered material use); USES (Uses) (**epoxy** resins contg.; manuf. of high cond. **epoxy** -polymer solid electrolyte materials using)

IT 112-24-3, **Triethylenetetramine** 7439-93-2D, **Lithium**,

reaction product with **epoxypolyethyleneglycol** 7791-03-9, **Lithium** perchlorate 14283-07-9, **Lithium**

tetrafluoroborate 159335-65-6, 1,3-Diglycidyl-2-(2'-
cyanoethoxy)propane
RL: TEM (Technical or engineered material use); USES (Uses)
(manuf. of high cond. epoxy-polymer solid electrolyte
materials using)

L43 ANSWER 30 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:657504 CAPLUS

DOCUMENT NUMBER: 121:257504

TITLE: Ionically conductive, insulative, and protective thin
films

INVENTOR(S): Akhtar, Masud

PATENT ASSIGNEE(S): USA

SOURCE: U.S., 8 pp. Cont-in-part of U.S. 5,096,561.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5320716	A	19940614	US 1992-852022	19920316
US 5096561	A	19920317	US 1990-546897	19900702

PRIORITY APPLN. INFO.: US 1990-546897 19900702

AB The films are prepd. by combining a reactive polymer matrix with O, S or N
sites, such as polyethylenimine, polyether-polyamine, poly(
allylamine), or polyacrylamide, with a halocarbon epoxide
or anhydride. The films are used as anticorrosive antifouling paints,
filters, electrochromic devices, membranes, electrolytes, capacitors, etc.

IT 153644-90-7P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(coatings; ionically conductive, insulative, and protective thin films)

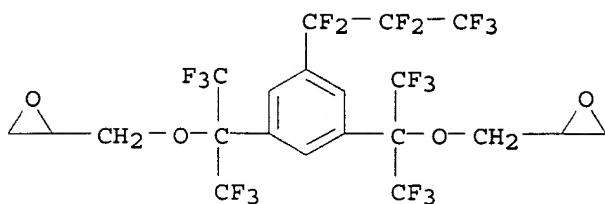
RN 153644-90-7 CAPLUS

CN Oxirane, 2,2'-[[5-(heptafluoropropyl)-1,3-phenylene]bis[[2,2,2-trifluoro-1-
(trifluoromethyl)ethylidene]oxymethylene]]bis-, polymer with
.alpha.-(2-aminoethyl)-.omega.-(2-aminoethoxy)poly(oxy-1,2-ethanediyl)
(9CI) (CA INDEX NAME)

CM 1

CRN 56164-59-1

CMF C21 H13 F19 O4

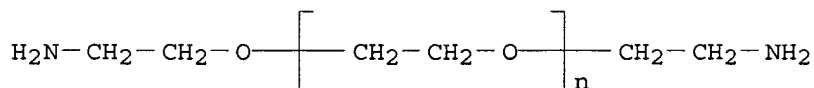


CM 2

CRN 24991-53-5

CMF (C2 H4 O)n C4 H12 N2 O

CCI PMS



IT 153644-91-8 153644-92-9 153644-93-0

RL: TEM (Technical or engineered material use); USES (Uses)

(coatings; ionically conductive, insulative, and protective thin films)

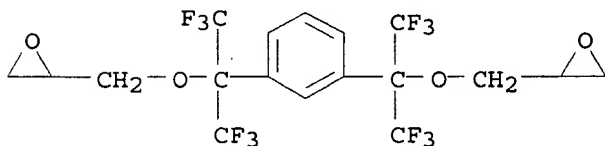
RN 153644-91-8 CAPLUS

CN Oxirane, 2,2'-[1,3-phenylenebis[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]oxymethylene]]bis-, polymer with .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)poly[oxy(methyl-1,2-ethanediyl)] (9CI) (CA INDEX NAME)

CM 1

CRN 26146-93-0

CMF C18 H14 F12 O4

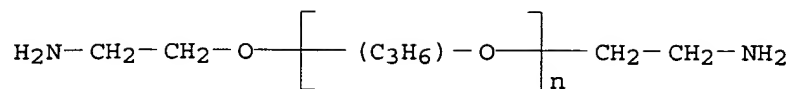


CM 2

CRN 9046-10-0

CMF (C3 H6 O)n C6 H16 N2 O

CCI IDS, PMS



2 (D1-Me)

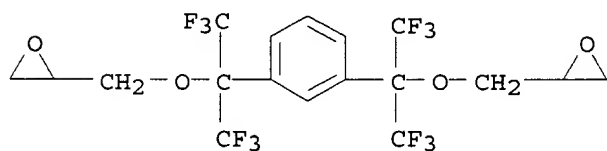
RN 153644-92-9 CAPLUS

CN 2-Propenamide, polymer with 2,2'-[1,3-phenylenebis[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]oxymethylene]]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 26146-93-0

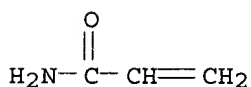
CMF C18 H14 F12 O4



CM 2

CRN 79-06-1

CMF C3 H5 N O



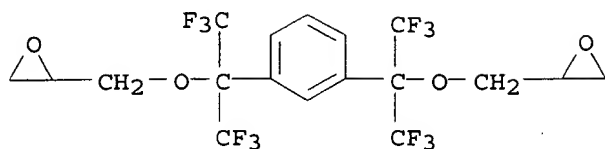
RN 153644-93-0 CAPLUS

CN 2-Propen-1-amine, polymer with 2,2'-[1,3-phenylenebis[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]oxymethylene]]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 26146-93-0

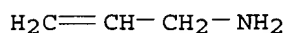
CMF C18 H14 F12 O4



CM 2

CRN 107-11-9

CMF C3 H7 N



IC ICM C25B013-08

NCL 204-59R

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 42, 72, 76

- ST polyether **polyamine** elec capacitor; anion proton transport membrane; nickel hydride **battery** proton conducting **electrolyte**; tungsten oxide electrochromic device; polyaniline **lithium battery electrolyte**; crosslinked polyethylenimine conductive film; anticorrosive antifouling waterproof coating
- IT Membranes
 - (crosslinked polyethylenimine; anion and proton transport membranes)
- IT Crosslinking agents
 - (fluorocarbon **epoxides** and anhydrides; ionically conductive, insulative, and protective thin films)
- IT Coating materials
 - Electric capacitors
 - Filters and Filtering materials
 - (ionically conductive, insulative, and protective thin films)
- IT **Battery electrolytes**
 - (polymeric; ionically conductive, insulative, and protective thin films)
- IT Optical imaging devices
 - (electrochromic, ionically conductive, insulative, and protective thin films)
- IT Electric conductors
 - (ionic, thin films)
- IT Batteries, primary
 - Batteries, secondary
 - Fuel cells
 - (separators, ionically conductive, insulative, and protective thin films)
- IT 153644-88-3P
 - RL: DEV (Device component use); IMF (Industrial manufacture); PRP

(Properties); PREP (Preparation); USES (Uses)
(capacitor; ionically conductive, insulative, and protective thin films)

IT 153644-90-7P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(coatings; ionically conductive, insulative, and protective thin films)

IT 153644-91-8 153644-92-9 153644-93-0
158809-11-1
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings; ionically conductive, insulative, and protective thin films)

IT 9002-98-6, Polyethyleneimine
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(crosslinked; thin films for electrolytes, electrochromic devices, and membranes)

IT 64431-61-4D, reaction products with polyethylenimine
RL: DEV (Device component use); USES (Uses)
(filters; ionically conductive, insulative, and protective thin films)

IT 26146-93-0D, reaction products with polyethylenimine
RL: TEM (Technical or engineered material use); USES (Uses)
(filters; ionically conductive, insulative, and protective thin films)

IT 875-02-5D, reaction products with polyethylenimine 9002-98-6D,
Polyethyleneimine, reaction products with fluoro **epoxides**
RL: TEM (Technical or engineered material use); USES (Uses)
(flexible absorbent coatings; ionically conductive, insulative, and protective thin films)

IT 1763-21-9D, reaction products with polyethylenimine 15214-89-8D,
reaction products with polyethylenimine
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(thin films for electrolytes, electrochromic devices, and membranes)

L43 ANSWER 31 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:607013 CAPLUS

DOCUMENT NUMBER: 119:207013

TITLE: Electrochemical characterization of new conducting polymer electrolytes

AUTHOR(S): Arbizzani, C.; Mastragostino, M.; Meneghello, L.; Andrieu, X.; Vicedo, T.

CORPORATE SOURCE: Dip. Chim. 'G. Ciamician', Univ. Bologna, Bologna, 40126, Italy

SOURCE: Journal of Power Sources (1993), 45(2), 161-8
CODEN: JPSODZ; ISSN: 0378-7753

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ionic cond. and electrochem. properties (Li cycleability and Li-polymer electrolyte compatibility) of polymer networks prepd. from telechelic **diamino**-terminated ethylene oxide-propylene oxide copolymers, with and without **amino** PEO oligomers, and butanediol diglycidyl ether crosslinking agent were investigated. Room-temp. cond. of the crosslinked polymer electrolytes is 2 orders of

magnitude higher than that of conventional PEO-based electrolytes; compatibility with Li proved to be fairly good.

IT 150274-97-8

RL: USES (Uses)

(electrolyte, electrochem. characterization of, for lithium batteries)

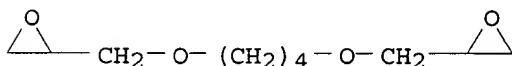
RN 150274-97-8 CAPLUS

CN Oxirane, 2,2'-[1,4-butanediylbis(oxymethylene)]bis-, polymer with methyloxirane and oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 2425-79-8

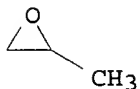
CMF C10 H18 O4



CM 2

CRN 75-56-9

CMF C3 H6 O



CM 3

CRN 75-21-8

CMF C2 H4 O



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72

ST polyoxyalkylene polyether conductive electrolyte electrochem
characterization; lithium battery polyoxyalkylene
polyether conductive electrolyte

IT Electric impedance

(of lithium batteries with polyoxyalkylene
polyether electrolytes)

IT Battery electrolytes

(polyoxyalkylene polyethers, electrochem. characterization of)
 IT Polyoxyalkylenes, compounds
 RL: USES (Uses)
 (amino-terminated, reaction products, with butanediol
 diglycidyl ether, electrolytes, electrochem. characterization
 of, for lithium batteries)
 IT Electric conductivity and conduction
 (ionic, of polyoxyalkylene polyether electrolytes)
 IT 150274-97-8
 RL: USES (Uses)
 (electrolyte, electrochem. characterization of, for
 lithium batteries)
 IT 2425-79-8D, reaction products with amino-terminated PEO
 25322-68-3D, Polyethylene oxide, amino-terminated, reaction
 products with butanediol diglycidyl ether
 RL: USES (Uses)
 (electrolytes contg. polyoxyalkylene polyethers and, electrochem.
 characterization of, for lithium batteries)

L43 ANSWER 32 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:564025 CAPLUS

DOCUMENT NUMBER: 119:164025

TITLE: Secondary lithium battery with
 organic electrolyte

INVENTOR(S): Xavier, Andrieu

PATENT ASSIGNEE(S): Alcatel Alsthom Cie. Generale d'Electricite, Fr.

SOURCE: Fr. Demande, 8 pp.

CODEN: FRXXBL

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2674685	A1	19921002	FR 1991-3877	19910329
FR 2674685	B1	19961213		
EP 511491	A1	19921104	EP 1992-105037	19920324
EP 511491	B1	19961113		
R: DE, FR, GB, IT, NL				
JP 05121101	A2	19930518	JP 1992-67576	19920325
JP 3290691	B2	20020610		
CA 2064356	AA	19920930	CA 1992-2064356	19920327
CA 2064356	C	19980811		
US 5290644	A	19940301	US 1992-858871	19920327

PRIORITY APPLN. INFO.: FR 1991-3877 A 19910329

AB The battery has a separator of a crosslinked polymer film that swells in
 the battery electrolyte. A microporous polyolefin
 film is juxtaposed to, and an inorg. or org. screen can be incorporated
 into the swelling polymer film. The swelling polymer film is selected
 from crosslinked ionically conducting polymer, a polyether with 2
 amine terminal groups, crosslinked with a crosslinking agent

contg. 2 **epoxy** groups, and it can contain a nonreactive plasticizer. The polyether is selected from PEO, poly(propylene oxide), and an ethylene oxide-propylene oxide copolymer, and it has a mol. wt. of 300-105. The crosslinking agent is used in an amt. so that the **epoxy:amine** ratio is 0.5-5. The crosslinking agent is of diglycidyl type or an **epoxide** resin. Alternatively, the swelling polymer film is selected from butadiene, isoprene, or F-contg. rubbers. Several invention separators were prepd., and a prepd. separator was used in a Li-V2O5 battery with 1M LiClO4 in DME-propylene carbonate electrolyte.

IT 150377-86-9

RL: USES (Uses)

(separators, for **lithium org.-electrolyte**
batteries)

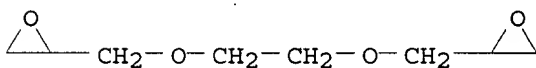
RN 150377-86-9 CAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl-, polymer with 2,2'-[1,2-ethanediylbis(oxyethylene)]bis[oxirane] and methyloxirane polymer with oxirane bis(2-aminopropyl) ether (9CI) (CA INDEX NAME)

CM 1

CRN 2224-15-9

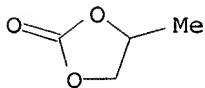
CMF C8 H14 O4



CM 2

CRN 108-32-7

CMF C4 H6 O3



CM 3

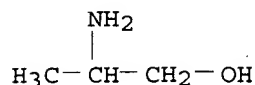
CRN 65605-36-9

CMF C3 H9 N O . 1/2 (C3 H6 O . C2 H4 O)x

CM 4

CRN 6168-72-5

CMF C3 H9 N O



CM 5

CRN 9003-11-6

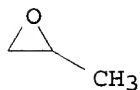
CMF (C3 H6 O . C2 H4 O)x

CCI PMS

CM 6

CRN 75-56-9

CMF C3 H6 O



CM 7

CRN 75-21-8

CMF C2 H4 O



- IC ICM H01M002-12
- ICS H01M010-26; H01M010-28
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
- ST **battery separator lithium org electrolyte;**
polyether crosslinked battery separator; rubber synthetic battery
separator; vanadium oxide **lithium** battery separator
- IT Plasticizers
(separators from conductive swellable polymer film contg., for
lithium org.-electrolyte batteries)
- IT Rubber, butadiene, uses
Rubber, isoprene, uses
RL: USES (Uses)
(separators, for **lithium org.-electrolyte**
batteries)
- IT Polyethers, uses
RL: USES (Uses)

- (amine-terminated, separators, for lithium org.-
electrolyte batteries)
- IT Rubber, synthetic
RL: USES (Uses)
(fluoro, separators, for lithium org.-electrolyte
batteries)
- IT Alkenes, polymers
RL: USES (Uses)
(polymers, separators from swellable polymer film and, for org.-
electrolyte lithium batteries)
- IT Batteries, secondary
(separators, lithium, crosslinked polyether)
- IT 110-71-4, Glycol dimethyl ether
RL: MOA (Modifier or additive use); USES (Uses)
(plasticizer, separators from polyethers contg., for lithium
org.- electrolyte batteries)
- IT 9003-17-2 9003-31-0
RL: USES (Uses)
(rubber, separators, for lithium org.-electrolyte
batteries)
- IT 75-05-8D, Acetonitrile, polymers with polyoxyalkylene and ethylene glycol
diglycidyl ether 9003-11-6D, amine-terminated, crosslinked
25322-68-3D, amine-terminated, crosslinked 25322-69-4D,
Polypropylene oxide, amine-terminated, crosslinked
134980-18-0D, polyepoxide crosslinked 150377-86-9
RL: USES (Uses)
(separators, for lithium org.-electrolyte
batteries)

L43 ANSWER 33 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1993:563948 CAPLUS

DOCUMENT NUMBER: 119:163948

TITLE: New conducting polymer networks

AUTHOR(S): Andrieu, X.; Boeue, J. P.; Vicedo, T.

CORPORATE SOURCE: Alcatel Alsthom Rech., Marcoussis, 91460, Fr.

SOURCE: Journal of Power Sources (1993), 44(1-3), 445-51

CODEN: JPSODZ; ISSN: 0378-7753

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New polymer networks are based on crosslinked polyethers. The crosslinking is carried out by reaction of a diglycidyl compd. with a polyether having two terminal primary amine groups. Ionic cond. depends on the level of crosslinking, the salt concn., and the nature of the polyether. At room temp., the best cond. was $>4 \times 10^{-5}$ S/cm. The crosslinked polymers have good mech. properties. Polymer electrolytes are completely amorphous and stable at $< 250^\circ\text{C}$. The measured glass-transition temp. is approx. -56°C . The networks are also used to synthesize hybrid electrolytes which include a liq. polymer or a high-dielec. const. solvent. The cond. of these electrolytes is close to org. liq. electrolytes.

IT 150274-96-7P 150274-97-8P

RL: PREP (Preparation)

(prepn. of conducting, for **battery electrolytes**)

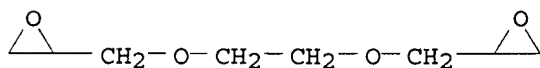
RN 150274-96-7 CAPLUS

CN Oxirane, 2,2'-[1,2-ethanediylbis(oxymethylene)]bis-, polymer with methyloxirane and oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 2224-15-9

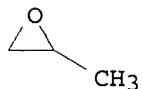
CMF C8 H14 O4



CM 2

CRN 75-56-9

CMF C3 H6 O



CM 3

CRN 75-21-8

CMF C2 H4 O



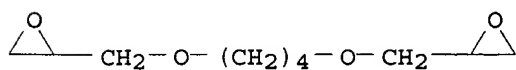
RN 150274-97-8 CAPLUS

CN Oxirane, 2,2'-[1,4-butanediylbis(oxymethylene)]bis-, polymer with methyloxirane and oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 2425-79-8

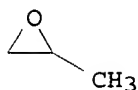
CMF C10 H18 O4



CM 2

CRN 75-56-9

CMF C3 H6 O



CM 3

CRN 75-21-8

CMF C2 H4 O



- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
- ST polyether crosslinked network **electrolyte battery**
- IT **Battery electrolytes**
(ethylene oxide-propylene oxide-diglycidyl ether copolymer for, prepn. of)
- IT Electric conductivity and conduction
(of ethylene oxide-propylene oxide copolymer crosslinked with diglycidyl ether, for **battery electrolytes**)
- IT Polyoxyalkylenes, compounds
RL: PREP (Preparation)
(**amino**-terminated, reaction products, with diglycidyl ethers, prepn. of conducting, for **battery electrolytes**)
- IT 108-32-7, Propylene carbonate
RL: USES (Uses)
(electrolyte contg. ethylene oxide-propylene oxide-diglycidyl ether copolymer and **lithium** perchlorate and)
- IT 7791-03-9, **Lithium** perchlorate
RL: USES (Uses)
(electrolyte, contg. ethylene oxide-propylene oxide-diglycidyl ether copolymer, elec. cond. of)
- IT 150274-96-7P 150274-97-8P
RL: PREP (Preparation)
(prepn. of conducting, for **battery electrolytes**)

L43 ANSWER 34 OF 35 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1992:554466 CAPLUS

DOCUMENT NUMBER: 117:154466

TITLE: An all-solid-state **lithium**/polyaniline

KOROMA EIC1700

rechargeable cell

AUTHOR(S): Li, Changzhi; Peng, Xinsheng; Zhang, Borong; Wang, Baochen

CORPORATE SOURCE: Changchun Inst. Appl. Chem., Acad. Sin., Changchun, 130022, Peop. Rep. China

SOURCE: Journal of Power Sources (1992), 39(2), 255-8
CODEN: JPSODZ; ISSN: 0378-7753

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The performance of an all-solid-state battery having a Li anode, a modified PEO-epoxy resin electrolyte, and a polyaniline (I) cathode was studied using cyclic voltammetry, charge/discharge cycling, and polarization curves at various temps. The redox reaction of the I electrode at the I/modified PEO interface exhibits good reversibility. At 50-80.degree., the Li/PEO-epoxy resin-LiClO4/I cells show >40 charge/discharge cycles, 90% charge/discharge efficiency, and 54 W-h/kg discharge energy d. (on I wt. basis) at 50 .mu.A between 2 and 4 V. The polarization performance of the battery improves steadily with increase in temp.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 38

ST lithium polyaniline battery solid state; PEO epoxy resin electrolyte battery

IT Battery electrolytes
(PEO-epoxy resin-lithium perchlorate, lithium-polyaniline rechargeable battery with, performance of)

IT Epoxy resins, uses
RL: USES (Uses)
(electrolyte contg. PEO and lithium perchlorate and, lithium-polyaniline rechargeable battery with)

IT Batteries, secondary
(lithium/PEO-epoxy resin-lithium perchlorate/polyaniline, performance of)

IT Polyamines
RL: USES (Uses)
(aniline-based, cathodes, in lithium battery with PEO-epoxy resin electrolyte)

IT 25233-30-1
RL: USES (Uses)
(cathodes, in lithium battery with PEO-epoxy resin electrolyte)

IT 7791-03-9, Lithium perchlorate
RL: USES (Uses)
(electrolyte, contg. PEO and epoxy resin, lithium-polyaniline rechargeable battery with)

IT 7439-93-2D, Lithium, PEO complexes 25322-68-3D, PEO, lithium complexes
RL: USES (Uses)
(electrolyte, contg. perchlorate and epoxy resin, lithium-polyaniline rechargeable battery with)

ACCESSION NUMBER: 1991:453442 CAPLUS
 DOCUMENT NUMBER: 115:53442
 TITLE: Crosslinked polymer electrolyte
 INVENTOR(S): Andrieu, Xavier; Boeue, Jean Pierre
 PATENT ASSIGNEE(S): Alcatel Alsthom Cie. Generale d'Electricite, Fr.
 SOURCE: Eur. Pat. Appl., 5 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: French
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 424827	A1	19910502	EP 1990-120130	19901019
R: DE, FR, GB, IT, NL, SE				
FR 2653938	A1	19910503	FR 1989-14061	19891026
CA 2028584	AA	19910427	CA 1990-2028584	19901025
JP 03188157	A2	19910816	JP 1990-288265	19901025
JP 3058341	B2	20000704		
US 5202009	A	19930413	US 1990-603510	19901026

PRIORITY APPLN. INFO.: FR 1989-14061 A 19891026

AB The electrolyte is an **amine** group-terminated polyether (e.g., PEO) crosslinked with a hardening agent contg. 2 **epoxy** groups and contg. 5-40 wt.% metal salt. The possible salt cations are Li⁺, Na⁺, K⁺, Ca²⁺, and NH₄⁺, and the possible anions are ClO₄⁻, CF₃SO₃⁻, SCN⁻, BF₄⁻, I⁻, Br⁻, N₃⁻, BH₄⁻, CF₃CO₃⁻, AsF₆⁻, and PF₆⁻. The electrolyte has good mech. strength and ionic cond., and can be used in primary and secondary batteries, capacitors, and electrochromic devices.

IC ICM H01M006-18
 ICS H01B001-12; C08L063-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 74, 76

ST polyether salt electrolyte; PEO salt electrolyte; **battery**
 polyether salt **electrolyte**; capacitor polyether salt
 electrolyte; electrochromic device polyether salt electrolyte; cond
 polyether salt electrolyte

IT **Batteries**, primary
Batteries, secondary
 Electric capacitors
 (**electrolytes** for, salt-contg. **amine**-terminated
 crosslinked polymer)

IT Optical imaging devices
 (electrochromic, electrolytes for, salt-contg. **amine**
 -terminated crosslinked polymer)

IT Electric conductivity and conduction
 (ionic, of **lithium** perchlorate-contg. **amine**
 -terminated PEO-ethylene glycol diglycidyl ether copolymers)

IT 2224-15-9D, polymers with **amine**-terminated polyethylene oxide,
lithium complexes 7439-93-2D, **Lithium**, complexes with
amine-terminated PEO-ethylene glycol diglycidyl ether copolymers
 7440-09-7D, Potassium, complexes with crosslinked **amine**

-terminated polyethers 7440-23-5D, Sodium, complexes with crosslinked
amine-terminated polyethers 7440-70-2D, Calcium, complexes with
crosslinked **amine**-terminated polyethers 14798-03-9D, Ammonium,
complexes with crosslinked **amine**-terminated polyethers
25322-68-3D, **amine**-terminated, polymers with ethylene glycol
diglycidyl ether, **lithium** complexes 134980-18-0D,
lithium complexes

RL: USES (Uses)

(**electrolytes**, for **batteries** and capacitors and
electrochromic devices)